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The Oil Man's Calendar

DEC. 3	New Mexico Oil and Gas Association, Artesia.
5	Oklahoma Stripper Well Association, Tulsa.
FEB. 9–12	American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.
26–27	American Petroleum Institute Division of Production, Southwestern District, Dallas, Texas.
28	North Texas Oil and Gas Association, Wichita Falls, Texas.
APRIL 16–17	National Petroleum Association, Thirty-ninth Semi-Annual Meeting, Hotel Cleveland, Cleveland, Ohio.
21–24	American Association of Petroleum Geologists, Twenty-seventh Annual Meeting, Cosmopolitan Hotel, Denver, Colorado.

Contents « November 24, 1941

Volume 103, Number 12

The Changing Panorama..... 11

Feature Section:

Should Stocks Be Increased Because of Emergency?.. 17

Stocks Should Not Be Increased..... 17
A LETTER FROM H. B. FELL

Oil Stocks Shockingly Low..... 18
BY E. O. THOMPSON

Factual Data on Stocks..... 21
BY L. J. LOGAN

Causes and Prevention of Drill-Pipe and Tool-Joint Failure (Part 3)..... 25
BY R. S. GRANT AND H. G. TEXTER

Practical Operating Hints for the Drilling Rig..... 46

News Section and Index..... 49

Looking Ahead with the Editor..... 2

Letters to the Editor..... 4

Notes for the Equipment Buyer and User..... 71

Squeaks from the Bull Wheel..... 70

Index to Advertisers..... 72

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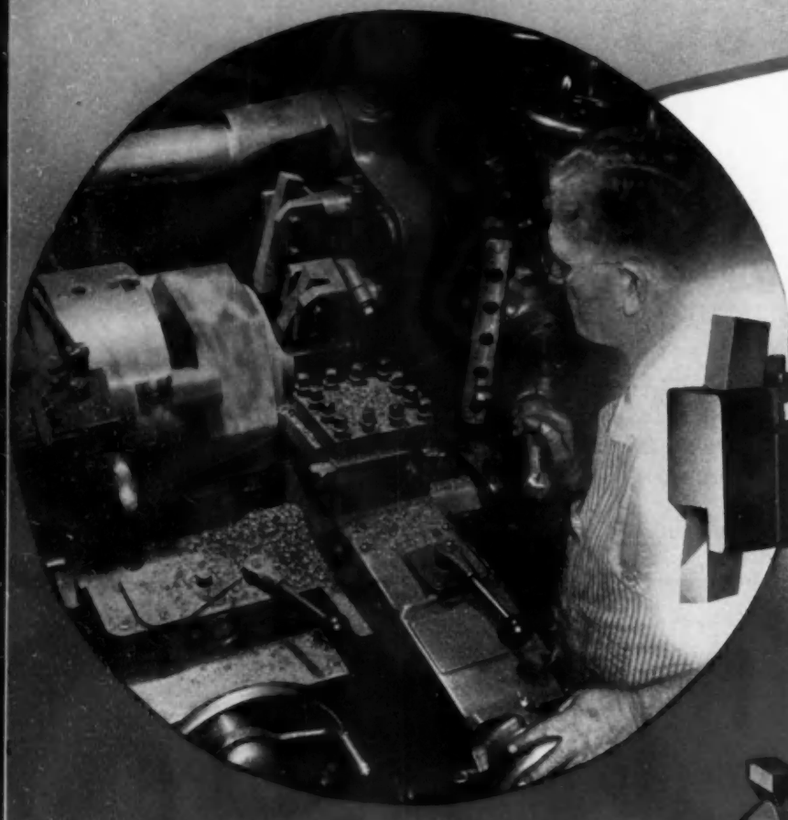

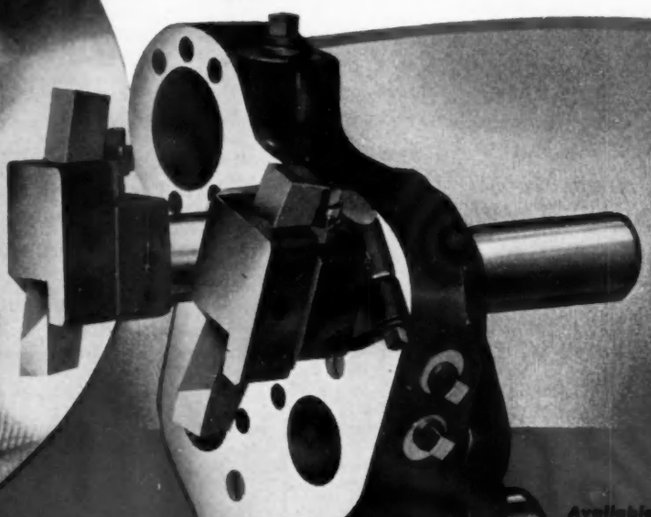

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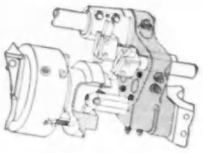
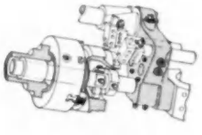
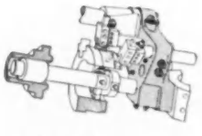
5 Ways to Use the Multiple Turning Head for Stepping Up Production



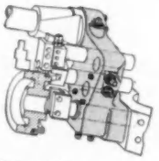
1. Turn Two Diameters and Bore
Here the Multiple Turning Head takes three cuts. An Angular Cutter Stub Boring Bar bores the blind hole. The two diameters are turned by Reversible Straight and Angle Cutter Holders.



2. Turn Two Diameters and Pilot Bore
Two Reversible Adjustable Angle Cutter Holders in the Turning Head turn two diameters of almost the same size; the Pilot Boring Bar bores the hole.



3. Turn Two Diameters, Chamfer one Diameter and Bore
Two diameters are turned with Reversible Adjustable Angle Cutter Holders while a Reversible Straight and Angle Cutter Holder chamfers.



4. Turn Two Diameters and Slab Face
Here two diameters are turned and the front "slab-faced." At the end of the turning cuts, one flat cutter in the Reversible Straight and Angle Cutter Holder faces the front of the casting.

5. Turn Two Diameters, Bore and Chamfer Hole
Here two operations on the hole are combined on one bar while two turning cuts are taken on the outside diameters. The hole is bored with an Angular Cutter Stub Boring Bar equipped with a Chamfering Head which chamfers the hole.

The Changing Panorama

Wildcatting Must Be Encouraged

Better Crude Price Best Means for Increasing Discovery Rates

Currently OPC is telling the industry that it must drill more wells and discover more oil because of the unprecedented consumptive demand that is in the offing for petroleum products. In this the foresight of OPC appears entirely correct. But no steps have been taken to encourage the wildcatter — who usually is a small independent operator. In fact the situation has gone into reverse, and its continuation will discourage wildcatting.

Under normal conditions, the situation facing oil already would have resulted in materially improved crude prices and by this time the industry would have been in the throes of an enlarged exploratory campaign. But Price Administrator Leon Henderson to date has frowned at the mention of higher prices, and recently has rejected attempts to boost crude postings in North Texas. Meanwhile, labor, material and tax charges have risen, making wildcatting more risky and costly. Moreover, there is the increasing difficulty being experienced in getting equipment.

Since the beginning of the industry's history, the price of crude always has been the most important factor in controlling the volume of drilling—especially wildcatting. Higher prices mean greater revenue return rates, and this constitutes a natural and powerful incentive to prospect for and develop new sources of supply.

No one will disagree with Henderson's belief that no industry, including oil, should attempt to profiteer because of the defense emergency. However, a proper price is essential or developmeint will suffer. That price should cover not only the actual cost of production, but provide a fair return of capital and some margin for extending exploration and development of new fields. It should not be difficult for the price administrator to determine what that level should be. It is encouraging that OPA has begun study of the "whole crude price situation in the Mid-Continent." Perhaps from this investigation will come the word that crude prices may be advanced. In that event, the industry may look forward to an active 12 months.

A sound crude price would solve the problem of obtaining increased wildcatting, which in turn should answer any doubts as to whether there will be a sufficient and continuing supply of petroleum during the emergency and the years immediately following.

Immediate Price Action Unlikely

Decision by OPA Before First of the Year Is Improbable

The Mid-Continent crude price studies being made currently by both the Office of Petroleum Coordinator and the Office of Price Administration are not likely to result in any action before the first of the year. Thus any prospects for improved crude markets before the end of the year are pretty dim.

In the first place, the investigation being made by OPA, final government authority on prices, probably will not be finished before that time. While the OPC study is being completed, the coordinator can do no more than recommend an increase to the OPA. Moreover, OPA may not make any decision until after Congress acts on the pending price-control bill, and present indications are that this will not occur until after the first of the year.

It is unfortunate that a decision on the crude price situation is unlikely before the first of the year. Many concerns, especially the larger operators, meanwhile will be making up their drilling budgets or estimates for the year 1942. An immediate price advance probably would result in a substantial expansion of these budgets, and thus would help create the additional drilling thought desirable for the industry.

General Prices Up . . .

Despite the efforts of the government to hold down prices, with which the oil industry has become painfully familiar, further increases of prices in general are regarded as inevitable.

The national income is estimated to be running currently at the rate of 93 or 94 billions of dollars annually, or over 20 billions above the 70 billions of 1939, prior to entering upon the defense program.

So far, this expansion of the national income has been largely in the form of an increase in the actual, physical volume of production, with only a relatively small part of the gain due to increased prices.

However, it is now estimated that the national income soon will go above 100 billions of dollars a year. Yet it is expected that the physical volume of production cannot be expanded in 1942 more than about 5 percent beyond present proportions, and a substantial part of the indicated further increase in national income would reflect not more goods and services but higher prices and wages.

The significance in this prospect in so far as the oil industry is concerned is that oil prices have been among those nailed by the government at certain levels; that the industry will be penalized if its prices are not allowed to keep abreast of the indicated future increases in wages and costs of materials.

Priority Forms Should Be Filed

Preference Ratings Let Supplier Replenish His Inventories

If oil operators continue to insist that supply firms sell them equipment without the purchaser filing OPM priority forms, it can mean but one thing: that supply houses

soon will not be able to fill the purchaser's needs for the simple reason that suppliers will have no equipment to sell. Shelves in supply houses would be as bare as Mother Hubbard's cupboard.

It is only through the preference ratings obtainable through the use of priority forms by the user or purchaser that the supply company can be assured of being permitted to replace the machinery he sells. For instance the commonly used P-22 forms give a supply house a preference rating of A-10 in replenishing inventories of materials sold under this order, but only the actual user can initiate this rating. Of course, the buyer must be certain that the purpose for which the equipment is to be used complies with the provisions of whatever priority form that is certified and filed. [See THE OIL WEEKLY, Page 52, Oct. 27, 1941.] Drilling contractors, producing companies and other buyers of oil field equipment should realize that unless they use one or the other of the available priority forms in every instance possible, that they are doing the supply companies an injustice and at the same time are selling themselves short.

There seems to have been considerable confusion on the use of priority forms, and some oil operators have been reluctant to use them—apparently in the belief that if the equipment was procurable without use of priority forms there was no reason for filing them. Fortunately, there seems to have been an improvement in this situation in recent weeks, some operators that formerly desired to forego filing the forms are now doing so. To protect themselves in the future it would be wise for all oil operators to adopt a policy of using the proper available priority forms, when the use for which the equipment is bought comes under any of their provisions.

Fill Out Forms Properly . . .

In filing priority forms, it is very essential that they be filled out properly. Otherwise they will be thrown out by OPM, causing delay and headaches to both OPM and oil companies. There are several particular points giving trouble that can be cured easily. For instance:

1. Be certain to give a specific date (such as November 24, 1941) when the material will be needed. Do not use words "immediately" or "at once."

2. Anticipate all needs a minimum of at least 45 days in advance, longer if possible. Even with preference ratings, suppliers frequently cannot give immediate delivery. This will eliminate costly and worrisome delays.

3. Do not ask for emergency ratings unless actual emergency exists. Fewer emergency ratings will be granted by OPM henceforth. Such requests interrupt OPM routine of handling 15,000 priority requests per day, and the resulting delay is costly and unnecessary, not only to yourself, but many others, whenever emergencies do not exist.

4. Do not attach supplementary sheets to any priority form. There have been instances when these have been changed after OPM has given preference rating to a request. Henceforth, all forms to which supplementary pages have been added will be thrown out by OPM.

Lower Quality . . .

Shortage of tetraethyl lead has resulted in an announcement of plans for allocating the supplies of this commodity, which is used in making premium gasolines. This means that the public must absorb the lead shortage, by curtailing consumption of high-octane gasolines and turning to lower-octane grades. It is the first move during the current defense emergency that has affected the quality of petroleum products available to citizens of the United States, but may not be the last.

The lead shortage is the result of military standardization on 80-octane gasolines for army vehicles and 100-octane gasolines for airplanes, thus increasing the quantity needed for military purposes.

Owners of automobiles powered with extreme high-compression engines will feel the curtailment of premium gasolines. Such cars will not perform as satisfactorily on lower grades. In the future, automobile manufacturers probably will redesign motors with a lower compression head to fit lower octane gasolines.

Continued decline of lubricating oil stocks has given rise to fears that this may be the next petroleum product to feel a shortage. However, it is not at all certain that a critical shortage of this commodity will develop, but there are indications that better quality oils may become scarce. In this event, the public probably will have to commence using lower grade oils. It might be possible for refiners to avert the shortage by careful selection of crudes that will make high-grade lubricating oils and diverting these to lube plants, whereas some crudes of this quality are now being used for gasoline manufacturing. This would necessitate changing of crude supply sources, which is not easy of accomplishment—but might be solved by OPC.

Easing Up . . .

Further steps in the return to normalcy on the East Coast following clearing up of the transportation situation were recent orders from Washington lifting export bans in that area, and lifting the ban on oil burners in defense housing units. Eastern shippers now can export to all friendly nations any product that is permitted to be moved from any other port in the United States, licenses being required together with affidavits that the products do not meet aviation gasoline specifications, and high grade products being permitted to go only to British territories and the Philippines. The ban on oil burner installations was put in effect when the shipping shortage was serious and was lifted when the emergency passed.

Rubber Plant . . .

Negotiations are nearing completion for construction of a $2,200,000 plant in Galveston County, Texas, to produce chemicals needed in the manufacture of synthetic rubber. The plant will be built under a lease arrangement between Monsanto Chemical Company, and the Defense Plant Corporation, RFC subsidiary. On completion, title will be retained by the Defense Plant Corporation. The unit is being constructed at the request of the Rubber Reserve Company.

Canadian Curtailment . . .

British Columbians are making a definite effort to voluntarily cut down gasoline consumption as a contribution to the war. Gasoline sales figures in September showed that 1,132,575 fewer gallons were used than in July, and 492,433 less gallons than in September a year ago.

Washington Roundup

Bureau in predicting continued consumption gain sees need for good markets and increased stocks . . . Approve plan for settling Mexican oil dispute . . . Priorities given aviation gasoline plants . . . Marketing conference called

By B. F. LINZ, Washington Correspondent

AMERICAN oil companies who lost their Mexican properties through expropriation, received another surprise with announcement of an agreement for a joint appraisal of the properties by the United States and Mexican governments. This action marked an otherwise quiet week on the Washington oil front.

The Mexican government put up $9,000,000 in gold as a token of its desire to reach a settlement, but unless the experts who are to be appointed agree on compensation or, barring such an agreement, the two countries can negotiate a settlement diplomatically, the deal is off.

Encouraging was the U. S. Bureau of Mines forecast that demand would continue rising. The report was significant because of statements that profitable markets would assist in relieving the dangers of a residual fuel shortage and that an increase in stocks was advisable.

Last week, while containing no other major developments, was featured by disclosures that the Office of Production Management will provide a "stockpile" of steel for oil drums so that there need be no interference with lend-lease shipments, and that the coordinator's office is engaged on a long-term plan for balancing oil supply and demand which also may involve "stockpiles" of crude and gasoline.

At the Capitol, Senator Joseph C. O'Mahoney of Wyoming, long critical of the industry's alleged failure properly to exploit the oil resources of his state, loosed a preliminary report on an investigation of the mineral resources of the public lands, in which he called attention both to the large reserves of oil and natural gas available in the West and to the huge supplies of coal, to which, he said, industry will turn for oil products when the natural petroleum is exhausted, even before it undertakes exploitation of oil shales.

Chairmen of the five district marketing committees were called to Washington to meet with OPC officials for a discussion of problems involved in the use of scarce materials for containers.

Bureau Forecast

The United States Bureau of Mines warned (November 21) that a serious problem may be encountered during the winter in securing an adequate supply of residual fuel oil unless a profitable market is provided, and held further that a substantial increase in crude stocks would be a "wise precaution."

Estimating that a daily average production of 4,139,000 barrels of domestic crude would be required in December to meet demand, the Bureau recommended that the present high rate of refinery operations be continued during the winter months in anticipation of further increases in demand during the coming year.

The December estimate of production, it said, is 69,000 barrels a day above the November estimate and 576,000 barrels above the actual demand in December, 1940. Reviewing the five-week period between October 4 and November 8, the Bureau reported that daily average crude production was 4,090,000 barrels and runs to stills 4,056,000 barrels. During the period, domestic stocks declined at a rate of 122,000 barrels daily, indicating a demand for domestic crude of 4,212,000 barrels.

"The Bureau's forecast," it was stated, "recognizes the desirability of maintaining the present high rate of refinery operations during the winter months. This applies primarily to the districts east of California, where runs to stills may already be close to refinery capacity and where the maintenance of stocks of refined products at higher-than-normal seasonal levels seems essential in anticipation of further increases in demand in 1942.

"A material part of the present national surplus in refinery capacity is located in California, where its use will be limited by the availability of tankers for foreign or intercoastal shipments," it was pointed out.

The continuation of runs to stills at an approximate level of 4,100,000 barrels daily, of which 600,000 would be in California and 3,500,000 east of that state, during the first half of 1942 would represent a gain of about 400,000 barrels daily over the relatively low operations in the first half of this year and would take care of a considerable part of the expected increase in demand for 1942, it was explained.

The unusually mild fall weather has maintained gasoline demand at a high level and has reduced heating-oil consumption below normal expectations," the Bureau said.

"Distillate fuel stocks are relatively high and this may permit higher-than-normal gasoline yields during the winter months. The supply of residual fuel for industry and Navy requirements may become a serious problem. An adequate supply of residual fuel may be dependent on the extent to which a profitable market will stimulate refinery yields and production, or upon the direct use of crude for fuel, or upon the ability to increase imports from Caribbean sources.

"While the principal current problem involves the relation of refinery capacity and stocks of refined products to increased demand in the districts east of California, no further heavy liquidation of

crude stocks seems desirable and a substantial increase would be a wise precaution."

The Bureau estimated domestic demand for motor fuel in December at 52,200,000 barrels, an increase of 12.5 percent over the actual demand for the same month last year. Exports are estimated at 2,800,000 barrels, exclusive of reexports of motor fuel imported in bond, compared with 1,983,000 barrels in December, 1940.

The forecast estimated an increase of 6,800,000 barrels in stocks during December, pointing out that stocks of finished and unfinished gasoline amount to 79,963,000 barrels on September 30, and statistics of the American Petroleum Institute indicated an increase of about 2,300,000 barrels during October, making a total of 82,300,000 barrels at the close of that month. "Although these stocks are more than 3,000,000 barrels higher than those of the previous year, adequate inventories should be accumulated to meet a high demand and possible refining and transportation difficulties in the coming year," the Bureau commented.

With benzol production and direct sales of natural gasoline estimated at 1,800,000 barrels, the Bureau figures an indicated refinery production of 60,000,000 barrels, which is allocated among the several districts as follows:

East Coast, 7,380,000 barrels; Appalachian, 2,270,000; Indiana-Illinois, 12,790,000; Oklahoma, 3,010,000; Kansas, 3,420,000; Inland Texas, 4,020,000; Texas Gulf Coast, 14,690,000; Louisiana Gulf Coast, 1,990,000; Inland Louisiana-Arkansas, 1,210,000; Rocky Mountain, 1,620,000; California, 7,600,000.

Natural gasoline to be blended at refineries was estimated as 7.9 percent of the total refinery production of 4,720,000 barrels, and the yield of straight-run and cracked gasoline was placed at 43.59 percent, which applied to the production of 55,280,000 barrels gives crude runs of 126,810,000 barrels, or 4,090,600 barrels daily.

The estimate for foreign crude runs to stills was 4,200,000 barrels. Exports were placed at 2,500,000 barrels, compared with 2,074,000 barrels a year ago, and crude to be used as fuel and losses was seen as 3,200,000 barrels, giving an estimated demand for domestic crude of 128,310,000 barrels for the month, or 4,139,000 barrels daily, allocated among the producing states as follows:

Texas, 1,479,700 barrels per day; California, 635,800; Oklahoma, 460,000; Illinois, 426,500; Louisiana, 340,000; Kansas, 260,700; New Mexico, 1,116,100; Wyoming, 81,900; Arkansas, 76,500; Mississippi, 60,300; Michigan, 52,300; Pennsylvania, 47,300; Montana, 20,700; Indiana, 19,700; New York, 14,800; Kentucky, 13,600; West Virginia, 11,800; Ohio, 9400; Nebraska, 6100, and Colorado, 5800 barrels.

Mexican Oil

A six-point agreement between the United States and Mexico, announced by the State Department November 19, may pave the way for settlement of the controversy over the 1938 expropriations of American oil properties, but gives no assurance that any satisfactory conclusion will be reached.

As evidence of good faith, the Mexican government deposited $9,000,000 in gold, on account of the compensation to be paid the American companies, and agreed to an appraisal of the properties by two experts, one representing each government.

The joker in the agreement, however, was the provision that in the event the two experts failed to reach the same conclusions as regards compensation, diplomatic negotiations will be necessary.

The oil companies, apparently, remain free to determine whether they will take whatever compensation is thus made available to them and, according to Secretary of State Cordell Hull, "will retain full liberty of action in determining the course they will pursue before, during, and after the valuation proceedings."

Companies which compromised their claims by their own negotiations with the Mexican government will not be included in the proposed plan of settlement.

The agreement provides that the United States government will facilitate negotiations of oil companies who may wish to make arrangements for the marketing of Mexican oil.

The other points covered by the agreement are to negotiate a reciprocal trade treaty, adjustment of the agrarian and other claims, stabilization of the Mexican peso, purchase by the United States treasury of newly mined Mexican silver, and extension of $30,000,000 credit for the completion of the inter-American highway.

"These agreements have been reached only after months of discussion and negotiation," Secretary Hull said, adding that the controversy over the oil expropriations "while of comparatively recent origin, has presented a very difficult and complicated issue.

"The agreement covering the petroleum expropriations deserves special mention," he continued. "The petroleum properties were expropriated three and one half years ago. Since that time negotiations have been repeatedly undertaken by the Mexican government and the affected United States interests. Unfortunately, the negotiations involving the largest United States interests were fruitless. Although this government was not a direct participant in these negotiations it did what it could to facilitate a solution of the problem through both formal and informal representations to the Mexican government.

"In view of the total absence of any negotiations between the American interests and the Mexican government during the present calendar year, and because of the importance of advancing the petroleum dispute to a prompt settlement, this government undertook to canvass the problem with the Mexican government in the hope that a fair and equitable arrangement might be reached.

"This government believes that the arrangement signed today embodies practical, efficient and equitable procedure for promoting a solution of this question," Hull declared. "Its central feature is provision for the determination of the value of the expropriated properties, rights and interests. This information obviously is essential in connection with any settlement. The American interests involved will retain full liberty of action in determining the course they will pursue before, during, and after the valuation proceedings."

Under the agreement the two governments will each appoint an expert within the next thirty days, whose duty it will be to determine the just compensation to be paid the American owners for their properties and rights and interests.

If the two experts agree upon the amount to be paid, they are to render their joint report to the two governments within five months; if unable to reach an agreement within that time, each will submit a separate report to his own government within a further period of

30 days, upon receipt of which the two governments will seek through diplomatic negotiations to determine the amount of compensation to be paid.

In a note to Secretary Hull, setting out 18 points under which the settlement is to be made, the Mexican Ambassador, Francisco Castillo Najera, stipulated that the appraisal will not include properties, rights or interests which may have been included in any arrangement with respect to their purchase, transfer or indemnification concluded between their owners or possessors and the Mexican government, thus taking out of the picture companies which already have made a settlement with Mexico.

Farish Not Pleased with U. S.-Mexico Deal

Despite arrangements made last week between the American and Mexican governments toward a settlement of the oil expropriation controversy the expropriated companies stand firm on the ground that the plans are devoid of an equitable solution, are vague and tend to validate the original confiscation. Last Friday President W. S. Farish of Standard Oil Company (New Jersey) made the following statement on the matter:

"The oil companies, in two recent letters to Secretary of State Cordell Hull, explained in detail why they found it impossible to accept the Mexican government's oil settlement proposal which, according to press reports, the State Department approved November 19. The companies could not accept the present agreement because:

"1. It purports to validate the original confiscation, which violated international law, and thereby jeopardizes all foreign investments.

"2. It promises payment over a period of 11 years from the time of expropriation by a government which already is now hopelessly in default on its foreign debts, and thereby repudiates the principles enunciated by the United States government that a valid expropriation is conditioned on the payment of 'adequate, effective and prompt' compensation.

"3. Aside from the fundamental principles, the agreement itself is so vague and ambiguous as to seem to the companies dangerous; and it binds the companies to accept a speculative promise in exchange for their tangible properties.

"In the last letter to Secretary Hull the companies said that they: 'stand ready to share with all other American companies, and with the citizens of the United States as a whole, all public burdens lawfully imposed. But, in view of the fundamental principles involved in a confiscatory seizure by the Government of Mexico of the foreign owned oil properties in that country, principles on which the United States and the other interested governments have consistently stood, we do not feel that we could, from any point of view, justify our sacrifice expressly or otherwise, of the interests with which we are intrusted.'"

Aviation Gasoline

High priority ratings for materials have been granted by OPM on five additional plants in the program to expand aviation gasoline production, it was announced by OPC November 17.

At the request of the coordinator, it was said, priorities were given on materials for the isobutane plant being constructed at Amarillo, Texas, by Shamrock Oil & Gas Company; a 100-octane plant at Philadelphia for The Atlantic Refining Company; a thermal cracking unit for Standard Oil Company of California at Richmond; a polyform cracking unit for Union Oil Company at Los Angeles, and an isopentane plant at Toledo, Ohio, for Standard Oil Company of Ohio.

This brings to a total of 20 the number of aviation gasoline plants under construction or soon to be commenced under the coordinator's program to triple present refining capacity, it was stated.

Priorities

Two new orders, designed to speed the manufacture of steel drums for overseas shipment of oil products, were issued November 17 by the priorities division of the Office of Production Management, effective immediately.

Under one order, manufacturers of steel drums will be required to set aside a specified inventory of the 16- and 18-gauge hot-rolled sheet steel from which the drums are made, to be used only upon specific order of the director of priorities. The other order extends a rating of A-4 to deliveries of the sheet steel to drum manufacturers for the purpose of replenishing the original inventory; any sheet steel acquired under this rating must be held under the same conditions as the original inventory, for use only on specific order.

It was explained that a manufacturer is not required to set aside more than the original reserve inventory called for under the first order, nor will he be required to replace that stock as it is used up under OPM orders. If he wishes to do so, however, he can use the preference rating to acquire the necessary stock.

OPM officials said this method of assistance was extended because orders for overseas shipments are frequently placed on an emergency basis, often not more than a week before sailing dates. Since it is impractical to create a substantial stockpile of finished drums, because of the large areas that would be required for storage, provision has been made for a stockpile of the basic raw material.

Allowables

A long-term program for the balancing of production and consumption, including a "stockpile" such as has been created for copper, rubber and other strategic materials, is in the process of development by OPC, it was disclosed by Deputy Coordinator Davies, November 17.

In a telegram to Col. Ernest O. Thompson, chairman of the Texas Railroad Commission, who had suggested that production be immediately increased to meet any possible defense demand, Davies recommended that the states continue their present practices in determining production quotas, at least for December, pending the working out of a national program.

(Davies telegram appears on page 19, and Thompson's appeal on page 18.)

Planners

Important marketing problems will be analyzed at a two-day conference between OPC officials and the chairmen of the five marketing committees, called by Dr. John W. Frey, director of marketing, to open November 24.

The sessions will include a conference with the container division of OPM to work out the most practical use of substitute materials in the manufacture of containers for oil products, and there also will be an exploration of the possibilities of further conservation of steel and tin.

Invited to the conference were: H. W. Dodge, vice president of The Texas Company, chairman for District No. 1; B. L. Majewski, vice president of Deep Rock Oil Company, chairman for District No. 2; Roy B. Jones, president of Panhandle Producing & Refining Company, chairman for District

No. 3; H. Earl Clack, president of Clack Oil Company, chairman for District No. 4, and C. G. Bessemyer, vice president of Gilmore Oil Company, chairman for District No. 5.

The committee heads were asked to bring to Washington experts from the industry whom they regard as most qualified to discuss operating problems relating to the use of steel barrels, metal drums and smaller containers.

Besides Dr. Frey, L. H. Spiner, marketing director for District No. 1, and C. B. Garretson, marketing director for District No. 5, and other members of the marketing division staff will participate in the talks.

Appointments

More men from the oil industry were added to defense staffs this week.

George W. Doffing, head research analyst of the petroleum and coal industries for Scudder, Stevens & Clark, New York investment counsel, was named price executive in charge of the fuel section of the Office of Price Administration, succeeding M. Quinn Shaughnessy, who will serve as a consultant to OPA.

L. Donald MacKay has been appointed to the fuel section of the division of accounting, analysis and review of OPA. MacKay has had broad experience in the industry, originally with the Standard Oil Company of New York and subsequently with Shell Oil Company, for which he was division manager.

Invasion

Charges that foreign interests were attempting to invade the American oil industry were laid before the House of Representatives November 18 by Congressman Jerry Voorhis (Dem.) of California.

The first step in that invasion, Voorhis asserted, is the attempt of the Societe Financiere de Transports et d'Enterprises Industrielles, commonly called Sofina, which has substantial interests in utility properties in a number of European cities, to acquire a substantial stock interest in Panhandle Eastern Pipe Line Company, operating a natural gas line from the Texas oil fields to Michigan.

He submitted newspaper reports to the House, in which it was disclosed that the Department of Justice, Treasury Department and Securities and Exchange Commission are making an investigation of the European corporation, which already has an interest in one of the great utility holding companies.

"Surely we cannot assume that a vast European utility empire with properties principally in Axis countries, or in lands overrun by or tied to the Axis, is particularly unfriendly to the Axis governments," Voorhis said. "Even were Sofina's subsidiary in this country a creature of the Bank of England, its designs upon the vital Texas-to-Michigan pipe line, if reported truly, must be challenged by law-enforcement agencies wherever it lifts its head until its identity and purposes are unmistakably revealed."

Public Lands

"The undeveloped mineral reserves of the Western States constitute a challenge to a people who are rich beyond their dreams, but who have been led to believe that they are poor in the materials that they need," the Senate was told this week in a preliminary report by a public lands subcommittee which is making an investigation of unutilized natural resources of the public domain.

The report was submitted by Senator Joseph C. O'Mahoney of Wyoming, chairman of the subcommittee, who disclosed that recommendations for legislation to encourage exploitation of those resources will be submitted following the completion of the study.

While the preliminary report did not go deeply into the question of exploitation of public lands oil resources, it did call attention to the great reserves of coal and oil shale which will be available for oil production when petroleum resources are exhausted, a situation which may develop, it was warned, within a comparatively short span of years.

"Available figures show that the United States has reserves of coal estimated at 3,000,000,000,000 (trillion) tons, 20 percent of which is on the public domain," it was pointed out. This is said to be sufficient to supply anticipated demands for thousands of years. In addition to its value as a fuel and in industry, it constitutes an almost inexhaustible source of oil and gas, if and when the very considerable stock of petroleum oils and gases are exhausted.

"The known reserves of petroleum amount to 19,000,000,000 barrels, between 7 and 8 percent of which is on the public domain. Gas reserves amount to 108,000,000,000,000 (trillion) cubic feet, and the possibility of increasing these and the petroleum reserves by new discoveries is far from exhausted. The figures for petroleum do not take into account the vast quantities of oil known to exist in the oil reservoirs, which at present cannot be economically extracted."

The known oil shale reserves in the Rocky Mountain West are sufficient to produce 75,000,000,000 barrels of oil, it was added.

From the standpoint of the immediate future, Senator O'Mahoney declared, the significance of our great reserves of coal and the great waterpower resources of the Mountain States is the possibility of developing a volume of power almost unheard of at the present time.

But, he added, "in a little longer perspective, coal in the western fields is of great significance from another point of view, namely, that it offers an almost unlimited source of hydrocarbons now obtained from petroleum.

"As Germany has proved, it is merely a question of relative costs between hydrocarbons from coal and from petroleum. Without attempting to give exact figures, various witnesses before the committee pointed out that petroleum products from coal are probably economically desirable within our generation and that the need for their development is just around the corner."

Imports

For the first time since consummation of the reciprocal trade agreement with Venezuela, the quota of oil to be imported at the reduced tax will be entirely used this year, it is indicated by statistics compiled by the treasury department.

The Mexican quota of 138,578,400 gallons was filled last spring, the department said, and the Dutch West Indies last month sent in the last of their quota of 378,806,000 gallons. As of November 1, Colombia had shipped all but 2,407,965 gallons of her quota of 86,956,800 gallons, and Venezuela had sent in 1,607,497,910 gallons out of her quota of 1,913,049,600 gallons.

Should Stocks Be Increased Because of Emergency?

BECAUSE war and threats of war are imposing extraordinary demands and problems upon the American oil industry, it has become increasingly dangerous for the industry to maintain an attitude of complacency with regard to its ability to perform whatever may be asked of it, despite is marvelous record of resourcefulness and achievement in the past.

Consequently, far-sighted men of the industry, as well as men assigned by the government to collaborate with the industry, now are scrutinizing the whole operation of the industry with eyes open for weaknesses or potential failures in the functioning of the far-flung and complicated organization through which oil is found far beneath the earth, transformed by refining, and delivered into the tanks that fuel and lubricate the wheels of this mechanized nation.

In this examination of the industry, the inspectors have come upon and are carefully studying that part of the industrial operation represented by above-ground stocks of crude and refined oils.

In the light of all which is occurring and which may occur, they ponder, is there any danger that the existing stocks may prove inadequate; would it be advisable to increase them while we may?

This question has been raised rather quietly, but it has been repeated on all sides until it is asked in a voluminous chorus, which magnifies the question mark into one of the largest now confronting the industry.

In an editorial in the issue of November 3, page 223, this publication concluded:

Any shortage of oil that may arise will not be alleviated by crude or products which could have been produced, refined and stored, but which were not.

With this opinion that larger stocks appear desirable in the present circumstances, there is wide agreement. However, some able men of the industry disagree, and offer strong argument against veering from the currently pursued course of operating with virtually no surpluses of crude or products above ground.

This publication's attitude in the matter is strictly constructive, and its desire is to see taken the course which really should be adopted, as determined by careful and thorough study. Consequently, it herewith devotes considerable space to the presentation of additional information and views on the subject.

With the purpose of showing clearly where the industry now stands, as compared with positions in earlier years, in regard to stocks of crude and of the various products, there are presented several charts, which measure stocks in terms of days' supply at prevailing rates of consumption; and along with the charts is offered factual discussion of several of the important phases of the problem.

In addition, there are published herewith the views of several men who have expressed exceptional interest in the subject.

Colonel Ernest O. Thompson, chairman of the Texas Railroad Commission and former chairman of the Interstate Oil Compact Commission, is a leading advocate of increased stocks, and published herewith is his analysis of the inventory situation, as embodied in an address before the American Association of Oilwell Drilling Contractors and in a communication to Petroleum Coordinator Ickes. He proposed substantial building up of stocks of crude oil and gasoline and received from Deputy Petroleum Coordinator Davies the reply that the coordinator's office was studying the proper function of petroleum inventories but that further analysis was needed to determine a policy adequate for the emergency. Davies advised that state regulatory bodies meanwhile continue usual procedure in determining crude oil production quotas.

Prominent among those who oppose building up of stocks is H. B. Fell, executive vice president of the Independent Petroleum Association of America, and in this issue are given his views as set forth in a letter to this publication.

Stocks Should Not Be Increased

A Letter from H. B. FELL, Executive Vice President, Independent Petroleum Association of America

I HAVE read with a great deal of interest your editorial on page 223 of the November 3, 1941, issue of The Oil Weekly entitled "Why Stocks Should Be Increased." The purpose of your editorial is to advocate, as I understand it, increases in above-ground stocks of crude petroleum and its products. The reasons given for advocating this increase in storage are, briefly, as follows:

(1) A further sharp increase in demand
(2) Possible further diversion of tankers
(3) Possible interruption of imports
(4) Possible deficiency in domestic supply

I cannot agree with you that the above cited reasons indicate a need for an increase in above-ground storage, but believe, on the other hand, that they do indicate a problem of current production and transportation which requires consideration and such action as may be determined is necessary.

You point out that stocks during the 1920's and early 1930's were twice as large as present stocks when measured in terms of day's supply, and intimate that the present levels are accordingly grossly inadequate and should be greatly increased. This reasoning, it seems

to me, is fundamentally contrary to what we have considered to be for many years sound reasoning in connection with this matter.

It is true that total stocks of crude oil and refined products have been greatly reduced as you have pointed out. It is also true, however, that the decrease has been almost entirely in crude oil stocks in the United States and stocks of heavy fuel oil in California. In terms of day's supply, over 70 percent of the decrease in total stocks has been in stocks of crude oil while most of the remainder was in heavy fuel oil. This decrease has been widely recognized as sound conservation resulting from the conservation program effective for the past ten years. The large reduction in unnecessary crude oil stocks is in accordance with official government estimates of proper stock levels and we believe has unquestionably reduced waste. We think it would be clearly unsound to return to the previous high levels of crude oil stocks in the United States and heavy fuel stocks in California.

With regard to substantially increasing products stocks, it must be recognized that these stocks have been relatively small in terms of demand. The highest stock level that refined products have ever reached would only be equivalent to adding less than ten days' supply to the present stock position. It would seem to me that the huge demands for oil products make it entirely impractical to provide sufficiently large above-ground reserve supplies even if this could be accomplished without waste. For example, if gasoline stocks on the East Coast were at the highest level in history (the level of the spring of 1940) this would add less than seven days' supply to the present stocks of gasoline in that area. Obviously, as you point out in your editorial, "It is almost as if the consumer stood at the terminus of a pipe line, taking from it the barrel of oil that came out when the producer brought forth a barrel from the ground and turned it into the other end of the line." Stocks in the oil industry are, and necessarily must be, only working stocks and not reserves in the sense that they can fill demand for any period except brief periods of adjustment.

In view of this situation we can see no justification for advocating any real increase in above-ground storage. Gasoline stocks and light fuel oil stocks are both at all-time record levels at present and seem adequate as working stocks even in the face of increased demands. Heavy fuel stocks in the area east of California are relatively low but there is no opportunity or justification for large increases in these stocks. Crude oil stocks are probably near desirable working levels and certainly no one would want to see crude oil stocks return to the burdensome and wasteful level of crude oil stocks prior to 1933.

Stock Level Unimportant

We are unable to see where stocks can protect against any serious deficiency in supply from the four causes listed in your editorial, but believe that it is clearly a problem of current production and transportation rather than stocks. If either production or transportation becomes really inadequate it would seem that the only alternative is a curtailment of consumption. Stocks seem relatively unimportant to us in this picture. As far as stocks are concerned, the sound objective is—as it always has been — to provide adequate working stocks and avoid any unnecessary storage which serves no practical purpose and contributes directly to waste.

If the suggestion contained in your editorial was made effective I believe that it would be extremely detrimental to our conservation program and could readily result in the development of many unsound conditions in the industry.

I sincerely hope that you will carefully analyze this subject again, giving consideration to the points brought out in this communication. I know from having read your editorials and other writings in connection with the petroleum industry in the past of the constructive work that you have done and of your sincere desire to support all things which tend to better conserve our natural petroleum resources and to benefit the industry, so I am sure that you will realize that my only purpose in writing this communication with reference to your editorial is in an effort to be constructive by endeavoring to point out to you reasons for differing from the position taken in your editorial.

Oil Stocks Shockingly Low

By E. O. THOMPSON, Chairman, Texas Railroad Commission

An address before American Association of Oilwell Drilling Contractors, Dallas, Texas, November 14, 1941

FROM an analysis of the condition of the nation's stocks of crude petroleum, gasoline, and other oils, and after giving due consideration to contingencies that may arise during the national emergency, I am firmly convinced that the present supply of these essential commodities is wholly inadequate to meet present unprecedented demands and potential requirements that will no doubt arise as our national defense efforts are daily accelerated.

Stocks Shockingly Low

Within the past year the nation's crude oil stocks have been reduced approximately 19,400,000 barrels, even though average daily production is approximately 430,345 barrels above that of a year ago. We now have on hand 243,340,000 barrels of crude, or 62,660,000 barrels less than the 1937 peacetime level of 306,000,000 barrels. Based upon present daily consumption, the amount of crude now on hand represents only a 60-day supply of this vital commodity.

Within the past 12 months stocks of all oils in Texas, the nation's chief oil producing state, have been reduced 10,617,812 barrels. This reduction has taken place, even though, as of this date, Texas is producing 220,000 barrels more oil daily than we produced in July, 1940, or 15 months ago.

As of October 30, this year, the nation's gasoline stocks totaled 83,343,000 barrels. Within the past 18 months these stocks have declined 20,220,000 barrels, thus leaving available only a 45-day supply. This reduction has occurred despite the fact that we are now processing and refining 495,000 barrels more crude oil daily than we were processing and refining a year ago. Stocks of fuel oil, gas oil, and distillate at the present time average approximately the same amount held in storage in November, 1940.

We now have available only a 130-day supply of all oils which is considerably below the supply on hand during the first World War. From the best information and estimates that I have been able to obtain, Hitler had on hand a one-year supply of all oils at the beginning of his campaigns. By comparison and in a world at war, our available supply would seem shockingly and dangerously low.

Experience of the industry, over a period of years, shows that the amount of crude oil now in storage constitutes no more than proper working stocks for the industry's normal peacetime operations and that the amount of gasoline available at this time is not in excess of the amount needed for normal operating requirements. Reduction in crude stocks and increases in production reflect an unprecedented increase in the demand for this commodity, even in the early stages of the wartime economy.

Demands Unprecedented

It has been estimated, by some, that our government will build at least 100,000 airplanes and 125,000 tanks for the use of the armed forces of this and other nations. It is not at all unlikely that it will become necessary to build this number and more. The operation of these defensive weapons will require vast and unmeasured quantities of fuel and lubricants. Reliable sources estimate that no less than 280,000 trucks and automobile units will be built for use by our armed forces alone. Enormous quantities of fuel and lubricating oil with which to operate these machines will be required. Scores of new merchant ships are now under construction. These ships will soon begin to ply the seas in constantly increasing numbers. Oil will keep these ships afloat. We are now building a two-ocean navy. It is estimated that this branch of our military service alone will require 24,000,000 barrels more oil in 1942 than it required during the year 1941. In the months to follow our planes, tanks and trucks will come off the assembly lines in rapidly increasing quantities and will be placed in operation immediately thereafter, both at home and abroad, thus increasing new demand for oil at rapid paces.

Employment at New High

It has been stated upon competent authority that 27,000,000 of our people will be employed in our national defense industries by 1944, and that by early spring and summer of next year three million of these men and women will have begun work in these vitally essential national defense plants. Their transportation to and from the factories will mean greater use of the old automobile than during any period in our national history. The necessary 50 percent curtailment of automobile production during the year 1942 and possibly further drastic reductions in output during the remainder of the period of the emergency presages longer and harder use of these old units, by the millions engaged in our wartime efforts and consequently the use of much greater quantities of gasoline and lubricating oils in their operation.

The demand upon our railway and motor truck transportation systems in transporting vital war materials and necessities of life, in ever-increasing quantities, to the communities and strategic localities throughout the nation becomes greater and greater as the war tempo increases. The increased use of fuel and other derivatives of crude by these particular branches of our transportation system will be greatly increased over normal peacetime requirements.

If food is to "win the war and write the peace" our stockmen and farmers will demand more gasoline and lubricants for the operation of their automobiles, trucks and trac-

After Further Analysis OPC May Draft Stock Program

A slightly revised copy of Ernest Thompson's address, presented herewith, was forwarded to Petroleum Coordinator Harold L. Ickes, and Thompson received the following reply from Ralph K. Davies, deputy petroleum coordinator:

"The subjects of maintaining a better and more definite relationship between petroleum production and consumption and of determining the proper function of petroleum inventories have for some time been receiving the serious attention of this office, and your letter of November 11 finds us fully cognizant of the production, stock and consumption situation which, however, needs further analysis to determine a policy adequate for the emergency.

"Because of the multiplicity or abnormal factors which this emergency has added to the normal economic concepts which, as you know, have not been too clearly defined we find it inadvisable, in advance of such analysis to announce a long term program for the consistent balancing of production and consumption by such stock-piling operations as may be necessary. Although some preliminary program might be quite adequate and effective with respect to Texas, because of its predominant position in the petroleum industry, you will realize that some emergency impact might cause the application of the same incomplete program to some other area where it would result in some severe economic dislocation. It is submitted as our opinion, therefore, that the Texas Railroad Commission and the regulatory bodies of other states conform to their usual procedure in determining crude oil production quotas for December, pending an early announcement of a consistent and practical program for protecting the national interest by better correlation of petroleum stocks with petroleum production and consumption.

"In the meantime, we wish to concur with your statement that whatever additional quantities of crude may be required by the emergency should be withdrawn in a ratable and orderly manner from petroleum reservoirs and at such rates as will avoid injury to or loss of the remaining oil and energy reserves of those reservoirs. Thank you for your continuing interest in this vitally important subject."

tors as they produce and transport to market food for this and other nations now at war and peace. These needs must be supplied without delay. The wheels of the railroad engine, the freight car, the farm truck and tractor must keep turning. As they turn, so turns the war.

Reconditioning Important

It may be here pointed out with no less emphasis that the rate of abandonment of oil wells is gradually increasing and as the result potential ability to produce oil will be lessened proportionately. Likewise, in our wartime economy conditions may arise, in fact they have already arisen, which will make uncertain, if not impossible, the drilling by the industry of the number of wells, now deemed necessary by all, from which to produce the additional oil that will be required during the emergency. Possible shortages in drilling and producing equipment, together with other factors now at work, warn that such may be the case.

Robert E. Allen, director of production in the Coordinator's office, recently advised that it will be necessary for the industry to drill at least 30,000 wells in 1942, and that likewise it will be necessary to produce perhaps 4,500,000 barrels of crude oil daily in order to meet anticipated demands. This statement strongly indicates that there will be an additional demand for 400,000 barrels more crude oil daily than the nation is now producing. Dr. A. G. White, petroleum economist for the Bureau of Mines, very recently estimated that the demand for crude oil in 1942 will increase by possibly 12 percent over the demand of 1941, or 488,880 barrels daily. According to a recent statement of Allen H. Hand, assistant director of transportation in the Coordinator's office, it is the view of the Coordinator's office, "That every available means of transportation should continue to be used to keep our tanks full in event of any unforeseen emergency that might develop." And, "The great fact that we must all face today is that we must lay our plans against an unforeseen future." Ralph K. Davies, deputy petroleum coordinator has aptly said, "But now the oil industry must realize that it is no longer able to work normally. New and enormous demands are put upon it for the products necessary to run the machinery of defense industry. Unforeseeable expansion in military equipment creates a requirement for its products suddenly far beyond anything contemplated." According to Representative W. P. Cole, Jr., of Maryland: "A total demand of 5 million barrels daily within 18 months is not unlikely." This portends an increase of 900,000 barrels daily in national production. And further, "An ample supply of petroleum products is fully as important to our war efforts as an ample supply of steel, ships, armaments, explosives or airplanes."

Britain and Russia Need Oil

Lest Britain and Russia suffer, due and serious consideration must be given, by all, to the constant threat of loss of the oil fields of Russia and injury to the reservoirs of Iraq and Iran, from which England and Russia now obtain large amounts of oil. These nations produce more than 300 million barrels of oil annually. Any lessened supply of oil from such injury or losses must be immediately available. This nation of necessity must be ready and prepared to promptly fill these needs.

Fortunately we have 20 billion barrels of oil in the nation's reservoirs from which may be produced, without waste if done properly, sufficient amounts of oil of essential types and grades for use by this and other nations engaged in the common cause.

Empty Storage

We now have available more than 200,000,000 barrels of idle storage capacity located in divergent areas in which may be stored and made available additional crude and gasoline that may be needed to meet estimated demands as well as potential and contingent needs that may arise during the emergency.

According to some information, the rated idle operating refining capacity of the nation now stands at more than 500,000 barrels, of which 360,000 barrels is located East of California and in areas from which great quantities of refinable crude may be produced and obtained. The coastal and inland refineries of Texas alone are now operating approximately 150,000 barrels daily below rated capacity. In the inland area a number of small refineries are now completely closed down due to the lack of crude with which to carry on operations. In my candid judgment, this idle and closed in refining capacity, representing as it does potential ability to manufacture an additional 250,000 barrels of gasoline daily as well as vast quantities of other essential products, should be put to work during the fall and winter months of 1941 and 1942. This will insure additional supplies of gasoline and other products from which current estimated and unforeseen demands may be speedily met. There must be no shortage of gasoline and essential oils during the emergency. It seems to me that possible shortages may now be averted. Whatever the idle capacity of refineries may be, it should not longer be idle. The times call for every productive capacity to be put to work on defense.

Tankers Returned

Happily, our government has secured the temporary release, from the British government, of a number of tankers that may now be possibly used to transport crude and gasoline to the refining centers of the East Coast and other sections. The immediate use of this and other transportation facilities should lessen the possibility of future shortages of these vitally essential commodities and make available and ready for shipment supplies at seaboard for Britain and Russia, when called for. If we act now the problem of transporting crude, gasoline and other oils to the consuming areas may be partially solved. Prompt action appears essential to the nation's welfare.

Conditions may arise which may again make imperative the transfer of these and many more of our tankers to other wartime uses. Likewise, the activities of the Axis U-boats may cause sizeable losses of essential oils and gasoline while in transit between the ports of the other oil producing nations and the ports of Britain and America, and thus lessen the supply now on hand. It would definitely appear that we should now guard against all such contingencies by accumulating adequate stocks of crude oil and gasoline.

Should Maintain Storage

In the light of all these facts and others and in order that we may be fully prepared to meet the contingencies that may arise during the emergency, it seems to me that the industry should be immediately called upon to begin producing, refining and storing substantially large and increased quantities of

crude, gasoline and other products. It occurs to me that at least 306,000,000 barrels of crude and a minimum of 103,000,000 barrels of gasoline should be carried in storage throughout the emergency. Possibly much more. Certainly peacetime stock levels are not excessive during times of war. This would require an addition to present crude stocks of approximately 63 million barrels and an addition of approximately 20 million barrels to stocks of gasoline. Admittedly the additional crude should be produced ratably and orderly over a period of months in order to prevent waste and injury to the reservoirs, which would no doubt occur if such oil were produced within an extremely short period of time. In my judgment sound petroleum engineering undoubtedly dictates such procedure.

These are my views and the partial opinions, at least, of the eminent gentlemen whose names I have mentioned and are no doubt shared by many patriotic and deeply interested American citizens. I submit them to you Drilling Contractors of America for serious consideration. No doubt you have given the situation due and careful consideration, and from your own investigations and study you now have very pronounced and definite views upon the subject. Because of all these considerations, as well as many more that might be mentioned, and prompted by a desire to cooperate completely with all whose business and high duty it is to drill the oil wells of our nation in this time of grave emergency, I am now taking this opportunity to seek your judgment and ask your views and serious consideration of the stupendous task ahead of us all. Up to date it has fallen your lot to drill 75 percent of all the wells completed in these United States.

It appears your drilling tools will have to be even more active now than ever before. Texas is going to have to furnish a major portion of this added half to one million barrels of oil per day.

In the light of the facts pointed out and to contingencies mentioned, do you gentlemen of the petroleum industry deem it advisable or necessary in the interest of our nation's defense or the consuming public to produce, store and distribute during the fall and winter months of 1941 and 1942 substantial amounts of crude oil and gasoline over and above the amounts currently produced and now in storage?

If in your judgment additional amounts currently produced and duced, and stored as a precaution against the shortages that might occur during the emergency, what in your opinion should the minimum amount be? Should storage be brought up to 1937 peacetime levels?

Do you deem it either necessary or advisable during the emergency to carry as much as 306,000,000 barrels of crude oil and 103,000,000 barrels of gasoline or more, in storage in order to make available a ready and constant supply of these vital commodities with which to meet unforeseeable and possible contingencies that may arise during the emergency?

In the interest of the defense of this and other nations, do you deem it necessary or advisable that sufficient oil, if it can be produced without physical waste, be made available with which to operate idle and closed-in refining capacity during the fall and winter months of 1941 and 1942?

Shall we meet this challenge and produce the oil against the seemingly certain need, or shall we be caught short?

I feel confident that you will meet the need by adding to stocks now against the day of dire necessity. It seems prudent.

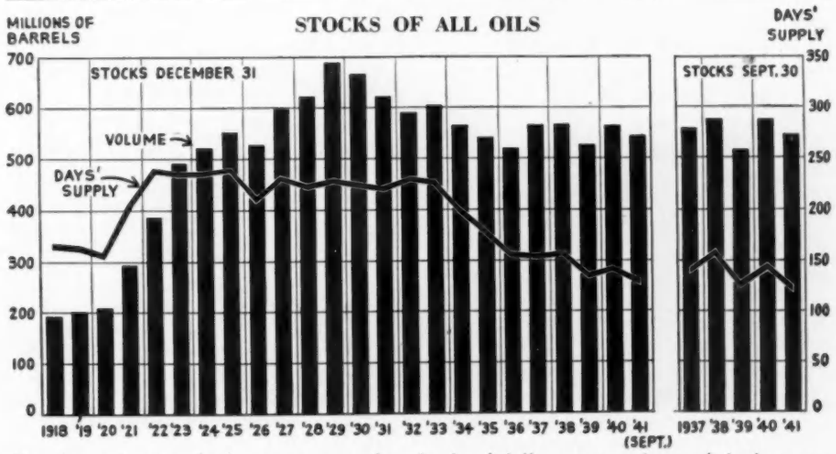
Factual Data on Stocks

Compiled by L. J. LOGAN, Associate Editor

ACCOMPANYING charts have been prepared for promoting clearer understanding of the stocks situation, and along with them, there is offered herewith a discussion of salient facts brought out in the charts or worthy of mention in connection with them.

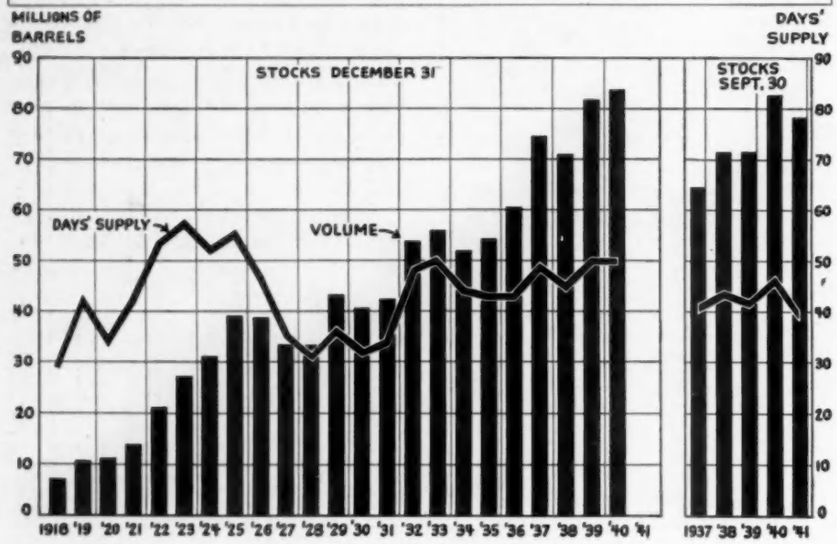
(1) **All Oils.** Stocks of all oils, crude and refined, measured in terms of days' supply at current rates of consumption, are today at the lowest level ever reached in modern times, being smaller than after the August, 1939, shutdowns of Mid-Continent oil fields for half a month, substantially smaller than during the World War, and only half as large as during the 1920's and early 1930's. The stocks of 544,216,000 barrels on hand September 30, 1941, represented only 121 days' supply on the basis of demand during September and 28 days' supply on the basis of demand in the first 9 months of 1941. In contrast, stocks at the end of 1918 represented 165 days' supply,

Relatively Small Stocks of All Oils, in Terms of Days' Supply, Largely Explained by Long and Steady Cutting Down of Crude Storage



Days' supply at end of year computed on basis of daily average demand during year and days' supply at end of September on basis of daily average demand during month.

Year-End Stocks of Motor Fuel Fairly Constant Since Several Years After World War


MILLIONS OF BARRELS
DAYS' SUPPLY
STOCKS DECEMBER 31
STOCKS SEPT. 30
DAYS' SUPPLY
VOLUME
1918 '19 '20 '21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31 '32 '33 '34 '35 '36 '37 '38 '39 '40 '41
1937 '38 '39 '40 '41

Days' supply at end of year based on daily average demand during year; days' supply at end of September based on daily average demand during succeeding month.

and from 1922 through 1933, stocks represented 220 to 240 days' supply.

Changes in stocks of all oils are of limited significance, however, as they have been determined largely by changes in crude stocks, with the inventories of refined products in the aggregate relatively constant. The chart for stocks of all oils is closely similar, therefore, to that for stocks of crude oil.

(2) **Refined Products.** The fact that stocks of all oils have varied with those of crude has reflected the relatively small changes through the years in days' supply of refined products. Even within any year, changes in aggregate product stocks are narrow, as the only important products showing distinct seasonal changes in stocks are gasoline and fuel oil, while changes for those two products are almost diametrically opposed, the total stocks of the two, in actual volume, being virtually a straight line that trends upward because of the steady over-all increase in gasoline stocks.

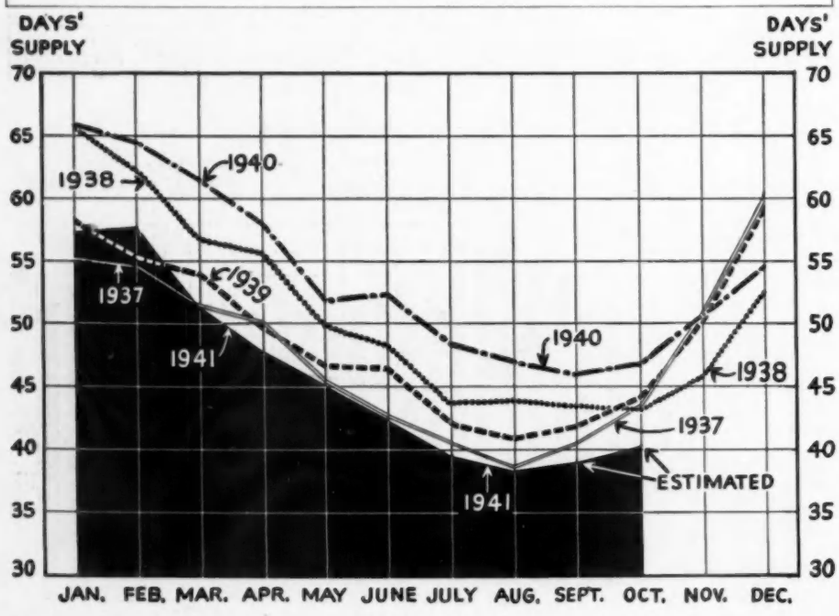
Total stocks of refined products on September 30, 1941, amounted to 282,411,000 barrels, and were not far from the all-time high, having been gradually increased in line with the steady growth in demand. Although the total was 12,000,000 barrels under a year previously, the reduction was almost wholly in stocks of heavy fuel oil in California.

On the basis of total demand for petroleum products during September, the September 30, 1941, stocks of refined products represented 63 days' supply, and on the basis of demand in the first 9 months of 1941 they represented 66 days' supply. Those figures were close to the average for the past 7 years, as end-of-year stocks from 1934 through 1940 ranged between 65 and 75 days' supply, although higher figures were indicated during the depression years, because of abnormally low demand.

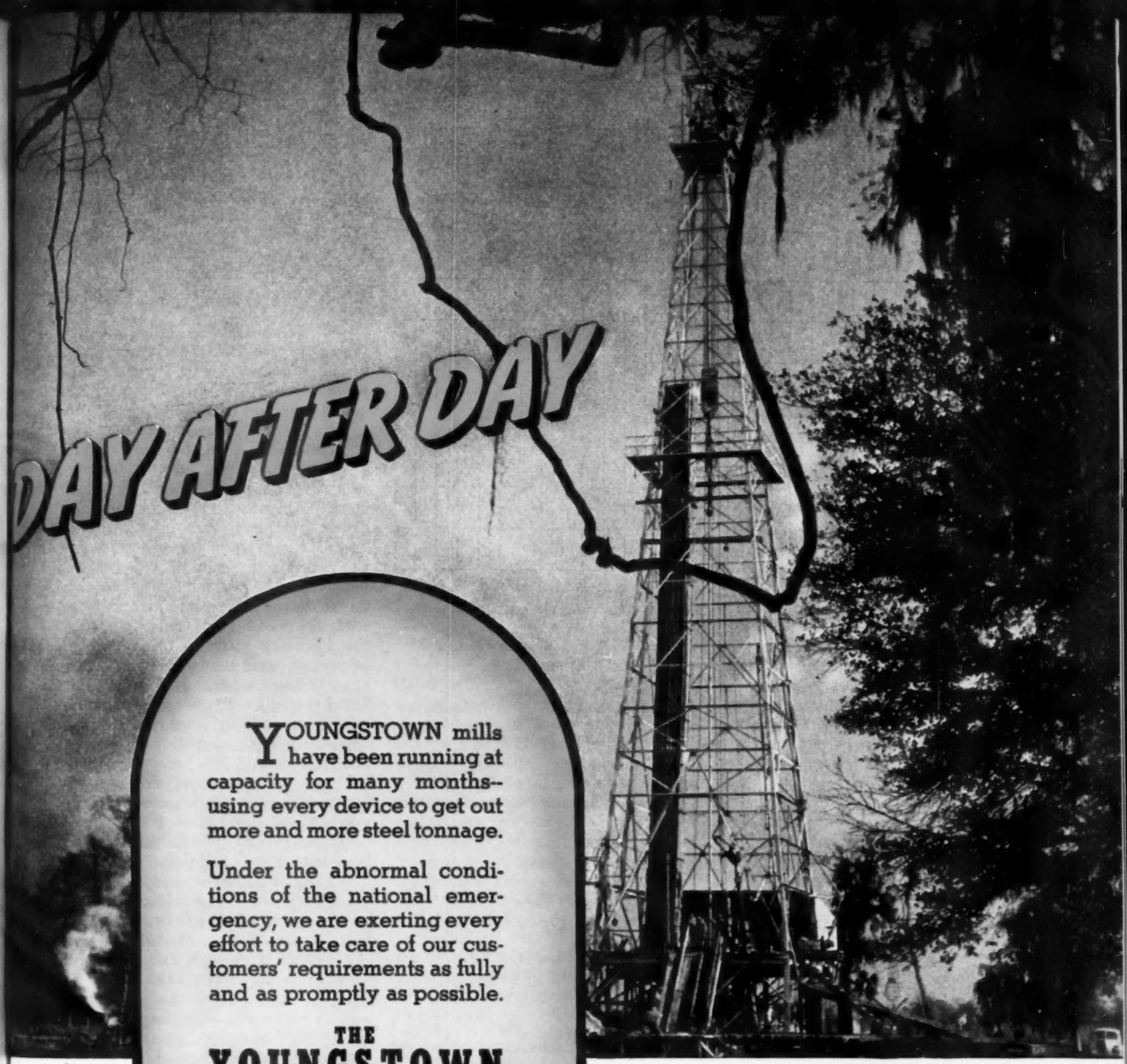
(3) **Motor Fuel.** Although stocks of motor fuel have been steadily expanded through the years, the increase has been in line with growth of consumption; and in terms of days' supply, present stocks are not far from the average maintained since the World War. End-of-year stocks of motor fuel, expressed in days' supply on the basis of daily average demand during the year, nearly always have fallen within a range of 40 to 50 days' requirements, or on the basis of demand in the succeeding January within a range of 50 to 60 days' supply; and this year will not bring a great variation from the normal trend. However, as shown on the chart giving monthly changes, the curve showing days' supply at end of the month in 1941 has run consistently under similar curves for all years back through 1937, attesting the fact that the industry has been operating this year with somewhat smaller than normal days' supply of motor fuel in storage.

(4) **Kerosene.** Stocks of kerosene have shown relatively little change since the World War, as regards both volume and days' supply, with December 31 stocks commonly representing around 50 days' requirements on the basis of daily average demand during the year.

Motor Fuel Stocks Running Lower This Year Than in Other Recent Years



Days' supply of motor fuel on hand in United States at end of month computed on basis of demand, domestic and export, in succeeding month.



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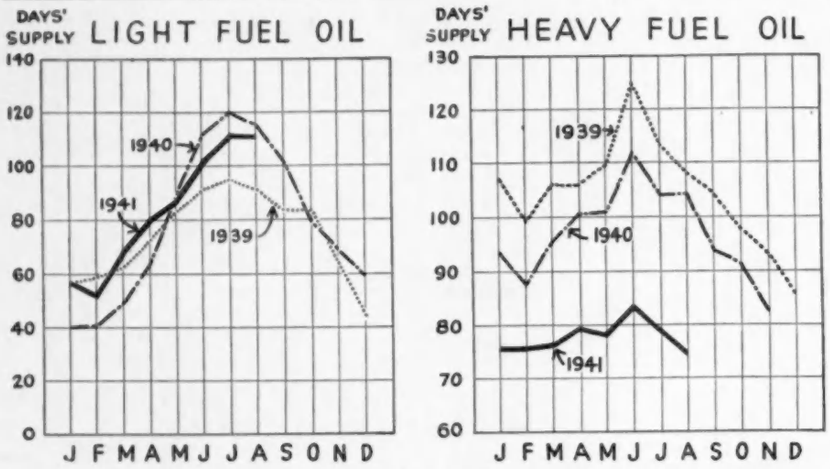
Stocks of Light Fuel Oil Normal This Year; Those of Heavy Fuel Oil Lower in Reflection of Reductions In California



Days' supply at end of month computed on basis of demand, domestic and export, in succeeding month.

The curve of days' supply varies widely within a year, however, when stocks are measured on the basis of changes from month to month in daily average consumption. The monthly curve for this year practically coincides with that for 1938, and days' supply has been consistently higher in 1941 than in 1937, 1939, or 1940.

(5) **Lubricants.** For the past 15 years, stocks of lubricants on December 31 have been generally between 7,000,000 and 9,000,000 barrels, representing usually around 90 days' supply on the basis of daily average demand for the year. This year, lubricant stocks have been, however, exceptionally small in relation to demand, which has been extremely heavy.

(6) **Light Fuel Oil.** As in the case of gasoline, stocks of light fuel oil are being increased steadily in volume, because of growing demand; and moreover, there has been some build-up representing a larger margin of safety in supplying demand. The curve of days' supply for 1941, by months, has been close to the trends of 1939 and 1940.

(7) **Heavy Fuel Oil.** Stocks of heavy fuel oil have been substantially reduced in recent years but largely in reflection of withdrawals in California. Heavy drafts in that state as well as relatively large current consumption account for the fact that stocks so far in 1941 have represented only around 80 days' supply, against about 100 days' supply in corresponding months of 1939 and 1940.

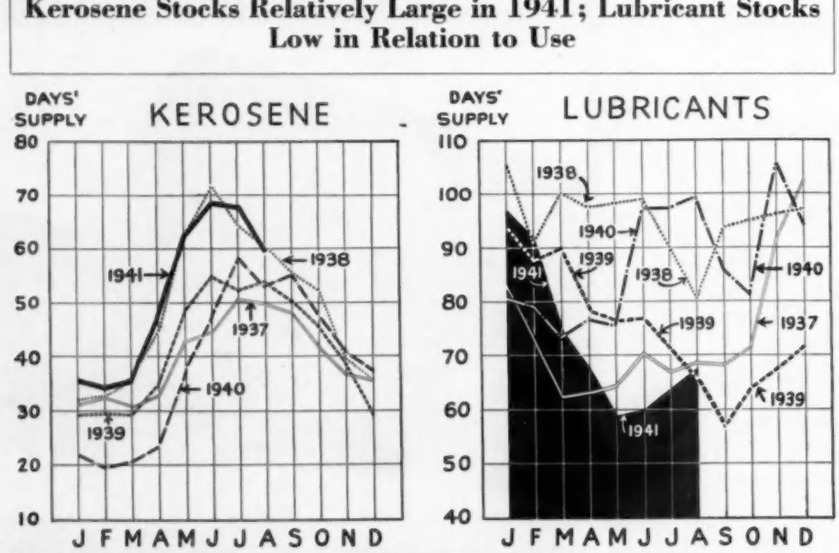
(8) **Crude Oil.** As indicated previously, the most significant changes in stocks in recent years have been those involving crude oil. At the end of 1921 crude stocks in the United States totaled 217,324,000 barrels, but by the close of 1922 they stood at 295,708,000 barrels, representing over 150 days' supply, on the basis of demand for crude in the succeeding January. Thereafter, the crude stocks were built up to a peak of 428,445,000 barrels at the end of 1929, although days' supply continued around 150, with demand increasing. After 1929 the industry entered upon a long period of withdrawals from crude storage, and at the end of 1939 it had on hand only 238,910,000 barrels, representing 65 days' supply. Currently it is in nearly the same position as at the end of 1939, having had on hand 246,111,000 barrels of refinable crude on September 30, equivalent to 58 days' requirements at the September rate of demand for crude.

All signs indicate that crude inventories are very close to the levels representing minimum working stocks. They are only a few millions of barrels in excess of the total on hand in late 1939 after the Mid-Continent oil field shutdowns, and those shutdowns forced some refineries to curtail runs sharply because of inadequacy of crude and made it apparent that the industry would have difficulty in maintaining normal operations if much more crude came out of storage. The experience at that time confirmed the findings of the Bureau of Mines in its Report of Investigations 3417, dated September, 1938, and summarized in this publication October 10, 1938, pages 23 to 25. In that report, made following a special, comprehensive survey of crude oil in storage, the bureau found that the industry apparently needed in storage between 200,000,000 and 250,000,000 barrels of crude.

At the time of the survey, it was found, the minimum working stocks of crude oil required for operation of the industry were ap-

[*Continued on page 54*]

Kerosene Stocks Relatively Large in 1941; Lubricant Stocks Low in Relation to Use



Days' supply at end of month computed on basis of daily average demand, domestic and export, during succeeding month.

Causes and Prevention of Drill Pipe and Tool Joint Failure

PART 3

By R. S. GRANT, Hughes Tool Company
and
H. G. TEXTER, Spang Chalfant, Inc.

MOST of the troubles ordinarily encountered with tool joints were discussed in some detail in a paper entitled "Drill Stem," by H. W. Fletcher.[2] Although the tool-joint section of this paper unavoidably repeats some of the same subject matter covered by that author, it is devoted mainly to some of the more recent developments in this category.

In considering present-day difficulties with tool joints, two major problems are definitely outstanding, viz: wabble failures in the pin and box connection, and wear on the outer surface of the joints.

In the earlier days of rotary drilling neither of these caused troubles of any serious consequence; but the increased depth of wells, the use of lighter drilling weight, anti-friction rock bits, higher rotary speeds, etc., have caused a sharp increase in the importance of these tool-joint troubles during the past few years.

Several other types of trouble which were encountered with tool joints in the earlier days have been eliminated almost entirely through improvements in material and manufacturing methods. However, in spite of these improvements, some of these troubles still occur on occasions and, therefore, will be discussed rather briefly. A discussion in greater detail then will follow concerning the more pressing problems.

1. Longitudinal Splitting of Tool Joints

1-a. Split Pipe Ends

This type of failure is usually due to seams or non-metallic streaks in the steel. Failures of this type, however, have become almost non-existent due to the increased use of upset forgings in the manufacture of tool joints. This forging or upsetting operation subjects the steel to such drastic deformation that any seams or streaks which may be in the steel usually appear as serious defects in the forgings, with the result that the material is scrapped before being made into tool joints.

THE first and second installments of this article appeared in The OIL WEEKLY of November 10 and November 17 respectively. The first chapter discussed drill-pipe failures due to twistoffs, spiral tears, tension, threads, and a number of fatigue causes. The second chapter dealt with corrosion fatigue, worn pipe, crooked pipe, collapsed pipe, internal erosion and magnetism.

The current installment, which takes up tool-joint troubles, is the third and final chapter.

These articles were all presented in a single paper before the Division of Production of the American Petroleum Institute at San Francisco, November 6, 1941.

1-b. Split Pin and Box Ends

Swelling of tool-joint boxes, accompanied by longitudinal splitting, has occurred in a few cases due to the application of exceptionally high torsional loads to the joints, with normal lubrication on the threads and shoulders.

With normal pin-and-box lubrication such as is used during ordinary drilling operations, the friction coefficient in the threads and shoulders is low. Under these conditions, if the joints are subjected to unusually high torque, such as might occur while fishing for stuck drill pipe, the joints may fail to develop the full torsional strength of the pipe section and may result in swelling of the boxes, swedging of the pins, shearing of the pin shoulders, and in ultimate splitting of the boxes, as shown in Figures 28 and 29.

When exceptionally high torque is to be applied to the drill stem, a special lubricant should be used on the tool-joint pin and box connections in order to develop a high coefficient of friction in the threads and shoulders. For this service a lubricant consisting of 1 to 2 pounds of red lead per gallon of kerosine has been found satisfactory. However, special care should be taken to clean thoroughly the threads before application of this lubricant—not only to remove the lubricant previously used, but also to avoid "frozen" or "galled" joints which might result due to the comparatively poor lubricating properties of the red-lead-kerosine mixture. This material should be used temporarily, only, when high torque is required for a special job.

2. Galled or "Frozen" Tool-Joint Pin and Box Threads

This type of failure, an example of which is shown in Figure 30, is more prevalent in new joints, and usually occurs during the "breaking-in" period. After tool joints have seen some service, the pin and box connections undergo certain changes which result in a material increase in the resistance to galling. Although the exact nature of these changes is not known definitely, one factor of considerable importance should be pointed out, viz., that increased clearance between mating threads resulting

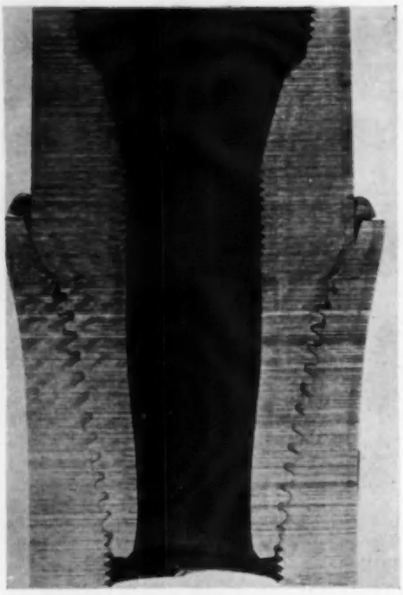


FIGURE 28
"Swelled" box and "swedged" pin resulting from combination of high torque and normal lubrication. Note that pin shoulder has been completely sheared off by the box shoulder.

from wear provides additional space into which foreign matter can be forced during makeup and, therefore, may reduce galling from this cause.

Although the factors which may contribute to this type of failure are rather numerous, it is frequently difficult to determine the cause exactly from an examination of the damaged pieces. It may be well, however, to discuss some of these factors and point out precautions which can be taken to help in the prevention of this type of trouble.

2-a. Damaged Threads

Tool-joint threads frequently became damaged in handling the pipe, particularly if not given adequate protection by the use of substantial thread protectors. The increased use within recent years of thread protectors on tool joints, both in shipment of new joints to the field and in moving the pipe from one location to another, has resulted in a substantial decrease in galled thread failures.

As a precautionary measure to avoid galled threads from this cause, it is well to follow the practice of thoroughly cleaning and inspecting the threads and shoulders each time the joints are picked up at a new location. Slightly damaged threads and shoulders should be repaired at the rig by carefully filing off the bruises, and more seriously damaged joints should be repaired in a well-equipped machine shop.

2-b. Lubrication

During the makeup and breakout of tool-joint pin and box connections, very high compressive loads often occur on the flanks of the threads. Therefore, unless a good quality of thread lubricant is used, galling is likely to result due to breakdown of the lubricating film under these high loads. Many excellent lubricants have been compounded especially for this purpose, the most satisfactory being those containing finely powdered metals or metal oxides such as zinc or red lead mixed with high-quality greases. The powdered materials provide some protection against galling, even though the pressures involved may be so high as to result in breakdown of the grease film.

FIGURE 29
"Swelled" tool-joint box showing longitudinal splitting which started at the shoulder.

Very good results also have been obtained with the use of special lubricants containing, in addition to powdered red lead, a relatively soft, easily compressed filler of rather coarse particle size, such as cottonseed meal, sifted to pass through a 12-mesh screen. This coarse filler becomes tightly compressed in the threads when they are screwed together and, therefore, provides an effective sealing action in the threads which is not provided in the case of many other lubricants commonly used on tool-joint threads. This material has been found to be very effective as a gall preventive even under high loads, and there is also some evidence to indicate that it assists in preventing the joints from "vibrating" loose while in service.

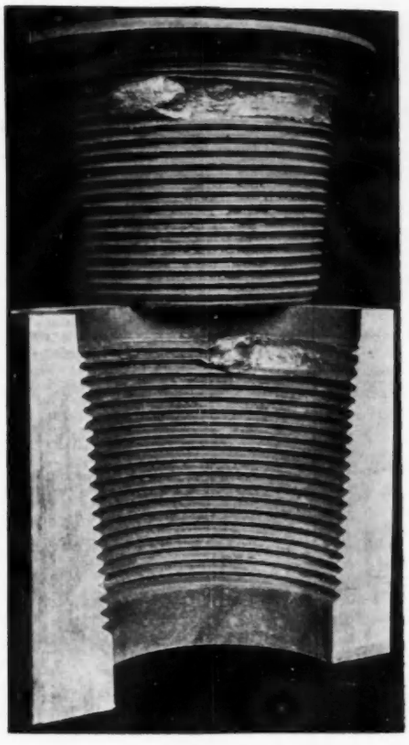


FIGURE 30
Example of galled tool-joint pin and box threads which may occur when proper care and attention are not exercised in handling the joints.

As additional protection against galling of threads and shoulders, the lubricant should never be allowed to become contaminated with sand, drilling mud, or other abrasive material—and the connections themselves should be cleaned well and adequately lubricated. In applying the lubricant, care should be taken to see that it is applied to the full length of threads and to the shoulders as well. Rotation of the pin in the box during makeup should not be depended upon to distribute the lubricant in the connection. A radial-bristle brush similar to a bottle brush has been found satisfactory for applying the lubricant to tool-joint threads.

2-c. High-Speed Makeup

It is common practice to make up tool-joint connections with a spinning line, which often develops high rotational speeds. Generally this practice does not cause trouble on old or worn joints; but if used with new joints, where the thread fit is much tighter and the thread surfaces have not become work-hardened, it frequently results in "burned" or galled threads.

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For the first two or three round-trips it is safer to tong the joints up by hand, and then cathead them up tight in the rotary, rather than to use the spinning line, as the danger of galling thereby is reduced.

2-d. Forced Makeup of Threads Improperly Engaged

When the tool-joint pin is stabbed into the box, the crests of the pin threads frequently land opposite the crests of the box

FIGURE 31

Galled tool-joint pin resulting from forced makeup with improperly engaged threads. Note damage to crests at left of badly galled thread.

threads, thus resulting in a jamming or wedging of the pin in the box. If the pin is rotated forcibly in the box in the makeup direction under these conditions, damage to the crest of the threads is almost certain to result. This damage is apt to cause a seriously galled connection, as shown in Figure 31.

In the event that this jamming or wedging occurs, it is advisable either carefully to rotate the joint backwards until the threads become properly engaged or to lift the stand and rotate it slightly, then lower it into the box—taking care to see that the threads become properly engaged before attempting to make them up.

2-e. Use of Worn or Damaged Kelly Sub

Inasmuch as the kelly sub is made up into every tool-joint box in the string, as hole is drilled, it is particularly important that this item of equipment be kept in good condition at all times. Use of a badly worn or damaged kelly sub may result in damage to many or all of the boxes in the string, and this damage in several cases has been the cause of subsequent galling or "freezing" of tool-joint pins and boxes.

2-f. Hardness of Material

The first heat-treated tool joints were manufactured within a hardness range which was considerably wider than that in current use by most manufacturers. These wider limits permitted the use of harder, and also softer, joints than are in general use at this time. It was found through years of experience that galling was more prevalent in the softer joints, whereas breakage occurred more frequently in the harder joints. Thus, present hardness limits were established by selecting the range of hardness wherein minimum failures of both types occurred. Present methods of controlled heat treatment and close inspection insure a product of uniform hardness at definite control points established by the manufacturers. Furthermore, inasmuch as the hardness usually can be checked accurately on a damaged joint as well as on a new joint, any question on this point can be settled readily.

3. Wabble Failures

Failures in tool-joint pins and boxes due to wabbling are the result of operation of the connections while loose. These failures developed with changes which were made in drilling practices in order to drill straighter hole.

Analyzing the major changes which have been made to accomplish this, we find that they are—in large part at least—in the direction of reducing the torque and making conditions more favorable for the setting up of tranverse vibrations in the drill stem.

In the earlier days of rotary drilling, the use of heavy drilling-weight plain-bearing rock bits and a large percentage of fishtail or drag-type bits developed rather high torque in the drill stem. This torque was sufficient so that any joints not actually tight quickly could be made up, and the weight had a tendency to cause the pipe to "spiral" in the hole and thus contact the wall. Contact between the pipe and the wall of the hole serves to prevent the occurrence of transverse vibrations in the drill stem, which have a tendency to cause the joints to work loose.

The change to light drilling weight, and the increased use of drill collars to supply the weight, both increase the length of pipe which is operated in tension. This condition is favorable for the setting up of transverse vibrations in the drill stem because the pipe does not have the same tendency to "spiral" in the hole, but is free to "whip" as it rotates. Also, it seems reasonable to assume that pipe held in tension does not contact the wall of the hole as forcibly as would pipe under compression, in straight hole at least. This would result in a reduction in the friction of the pipe against the wall of the hole and, consequently, a reduction in torque required to rotate the drill stem.

A further reduction of torque has resulted from use of anti-friction bearings in rock bits and a general reduction in the use of fishtail or drag-type bits. The lower the torque in the drill stem, the less tendency there is to tighten loose joints or to help keep others tight.

Increased tendency of the joints to leak, particularly in view of the increase in pump pressure accompanying increased rates of circulation and the greater depth of wells, has resulted from reduction in mud viscosity. Also, although the effect may be slight, lighter-viscosity mud has less damping effect on vibration of the pipe in the hole than would mud of higher viscosity.

Higher rotary speeds tend to increase the vibration or whipping of the pipe in the hole, especially if the speed used happens to be critical for the particular conditions involved.

3-a. Leaky Joints — "Dry" or "Muddy" Pins and "Washouts"

The earliest indication of wabble-type failures developing in a string of joints is the appearance of "dry" or "muddy" pins. Loose joints naturally are not pressure-tight; therefore, mud works into the connections and displaces the thread lubricant, thus accounting for the "dry" or "muddy" appearance of the pins when the connection is unscrewed.

Leakage resulting from loose joints often develops into badly "mud-cut" joints or "washouts" as shown in Figures 32 and 33.

3-b. Lapped or Worn Threads and Shoulders

When mud cutting is not as serious as shown in Figures 32 and 33, the threads and shoulders often

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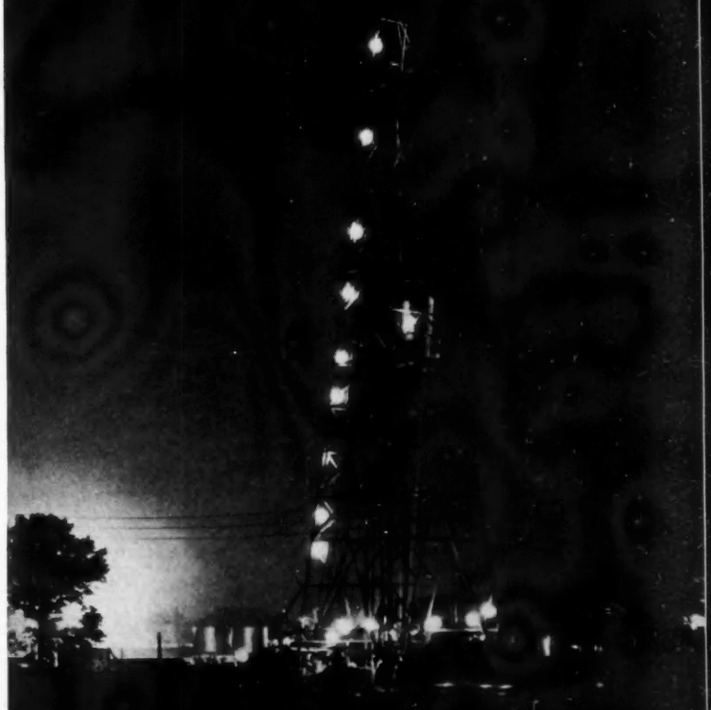

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FIGURE 32
Wabble failure in tool-joint pin resulting in a "washout."

become worn very rapidly as a result of a lapping action, which is set up as the pin wabbles in the box. The shoulders become lapped or worn to the point where they develop a definite crown, wherein high spots usually are found at two points diametrically opposite. These two high spots act as the fulcrum or axis about which wabbling occurs. Maximum wear on the threads occurs on the pressure flanks at an angle of 90 degrees with the axis of wabble, as shown in Figure 34, while minimum wear occurs along the axis of wabble as shown in Figure 35.

3-c. Broken Threads

As this wabbling operation continues, the threads directly below the axis of wabble often fail in fatigue, due to repeated bending back and forth during each cycle of rotation. Failures of this type are shown in Figures 36 and 37. If the joint is unscrewed at this stage, galled threads frequently occur due to interference of these broken threads, coupled with inadequate lubrication resulting from leakage through the connection.

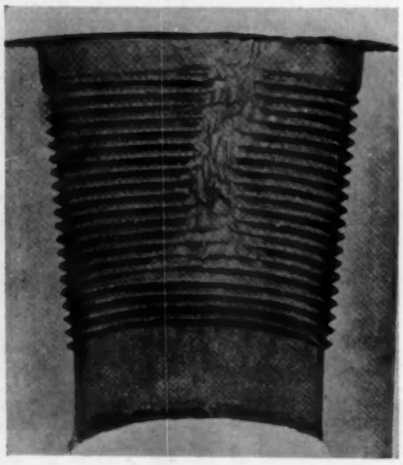

FIGURE 33
Wabble failure in tool-joint box resulting in a "washout." *Note:* This box is companion to pin shown in Figure 32.

3-d. Broken Pins and Boxes

The wabbling action also sets up sever stress alternations in the pins and boxes, which alternations often result in formation of fatigue cracks—the cracks usually originating at the root of the threads near the large-diameter end. In extreme cases complete fracture of the pin or box will occur, as shown in Figures 38 and 39.

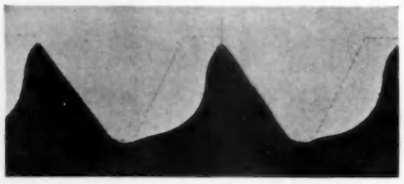

FIGURE 34
Showing maximum wear on pressure flanks of tool-joint threads at 90 degrees to the axis of wabble.

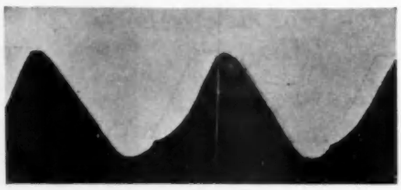

FIGURE 35
Showing minimum wear on pressure flanks of tool-joint threads in line with the axis of wabble.

No changes in design of tool-joint connections have been found which will prevent failures of this type. It has been found, however, that they can be prevented by the exercise of care in tightening the joints as they are run into the hole, provided sufficient care also is exercised in handling the pipe to avoid damage to the pin and box shoulders.

A tensile load on tool-joint connections such as that due to the weight of drill stem held in suspension below the connection during drilling results in stretching of the pin. This, in turn, results in separation of the pin and box shoulders unless the joint has been tightened sufficiently to produce an initial compression load between the pin and box shoulders in excess of this weight.

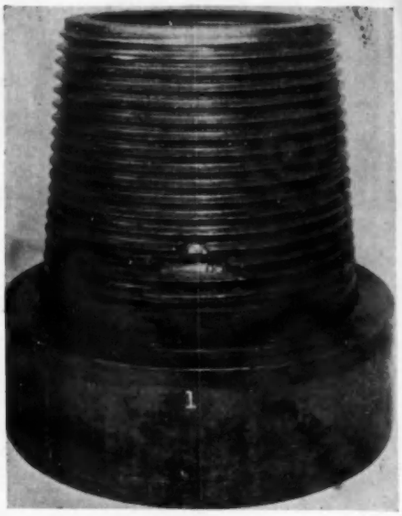

FIGURE 36
Broken tool-joint pin threads occurring directly below the axis of wabble.

The degree of tightness required has been found to depend largely upon the drilling conditions. When rock bits are used with heavy drilling weight and slow rotary speeds, or when drag bits are being run, a moderate degree of care in catheading the joints up tight is sufficient. On the other hand, when most of the digging is with anti-friction-bearing rock bits and light drilling weight, extreme care must be taken to buck every joint up tight when going into the hole. Even after making these precautions, there is some hazard that the joints may loosen during drilling.

The amount of force required to break the joints apart when coming out of the hole provides a fairly good check of whether they previously were made up sufficiently tight. If they break apart easily, they should be bucked up tighter the next time they are made up, or failures are apt to occur. It is good practice to use at least one wrap of the jerk line on the cathead for

FIGURE 37
Broken tool-joint box threads occurring directly below axis of wabble. Note gall and notch failure on box shoulder in line with the axis of wabble.

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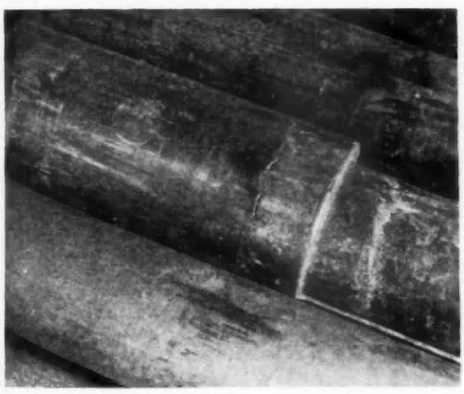

The tool joint shown at left is one of 25 hard-faced with Electric Tube Borium, applied to a ⅛" recess 1½" wide. Each hard-faced joint was spaced by ten unfaced joints and moved up or down the string during the run. *After 18,000 feet of drilling, unprotected joints were ⅝" to ⅞" undersize on OD . . . hardfaced joints showed NO WEAR!* Of the unprotected joints, only 127 out of the original 275 were fit for further service, and almost all were worn egg-shaped while the hard-faced joints were still concentric. Present savings—$20 per joint. Savings by the time run is completed may be as high as $60 per joint!

Tops in normal tool joint life amounts to about 18,000 feet of drilling in the Bryson, Texas, area—so tough is this district on unprotected joints. But illustrated at left is part of a string of integral tool joints rebuilt several months ago with high carbon and then hard-faced over the wearing surfaces with Coated Stoody Self-Hardening. *This string has now drilled between 24,000 and 25,000 feet of hole and is still good for several additional wells.* Tool joint life has been increased 150%—and by the time the hard metal deposits completely wear away will approximate 200%!

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The Stoody Alloys used in renewing tool joints are either Electric Tube Borium or Coated Stoody Self-Hardening, and the application is simple. Contact the Stoody representative nearest you for detailed information—or write Stoody Company for your free copy of the Engineering Bulletin which recommends methods and materials to meet every requirement.

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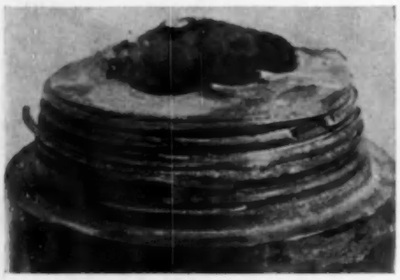

FIGURE 38
Fatigue failure in tool-joint pin resulting from wabbling.

each inch of nominal pipe size when tightening tool-joint pin and box connections. Thus, three wraps should be used for 3½-inch pipe, 4 wraps for 4½-inch pipe, etc.

When "dry" or "muddy" pins are found in the string, steps should be taken immediately to correct the trouble. If caught in the early stages, joints which have been wabbling usually can be repaired on the rig by dressing off the shoulders with files until the shoulders are flat. A small, hand-operated dressing tool containing short files, as shown in Figure 40, has been found satisfactory for this purpose. Figure 40 also shows a ring gage for checking flatness of the shoulders, which ring gage should be used in connection with the shoulder dressing tool. Unless the shoulders are flat and free from bruises, fins, scores, galls, etc., it is impossible to obtain a uniform bearing around the full circumference, regardless of how tightly the joint is tonged.

A uniform shoulder bearing is essential to prevent stress concentration, leakage, and wabbling. Therefore, the condition of the shoulders should be watched closely, and care should be exercised in handling the pipe to avoid striking the box shoulder with the end of the pin during stabbing or on the rebound when the pin is jumped out of the box with a spring hook. Protection also should be afforded the shoulders, during movement of the pipe, by the use of sturdy protectors.

When a "dry" or "muddy" pin is found, there is often a tendency to switch the dry pin to an undamaged box and put a good pin into the damaged box, in the hope that this will correct the trouble. Instead, however, this procedure usually results in further damage to two joints instead of one—and, thus, if the practice is continued, the trouble quickly may spread throughout the whole string.

FIGURE 39
Fatigue failure in tool-joint box resulting from wabbling.

Inasmuch as the wall thickness of drill pipe is small as compared with that of tool-joint sections, a given amount of radial wear will result in weakening the drill pipe by a greater percentage than it will the tool joint. Thus it can be seen that, in the event appreciable wear occurs on the drill pipe, the life of the drill pipe is likely to be reduced to the point where the tool joint and the drill pipe wear out at about the same time, as was the case formerly.

On the other hand, it seems reasonable to assume that, if the pipe is operated in tension, its contact with the wall of the hole during drilling not only will be lessened considerably, but the contact pressure also will be lower. Both of these factors would be expected to reduce the wear on the outer surface of the pipe and, therefore, other conditions being equal, should result in increased service life. Also, it should be remembered that the most commonly used tool joints have a considerably larger outside diameter than that of the drill pipe—which results in a reduction of hole clearance at the tool joints. Therefore, it would be expected that transverse vibrations in the drill stem might result in greater contact between the wall of the hole and the tool joints than would occur between the wall of the hole and the drill pipe. This naturally would increase the wear on the tool joints and decrease it on the drill pipe.

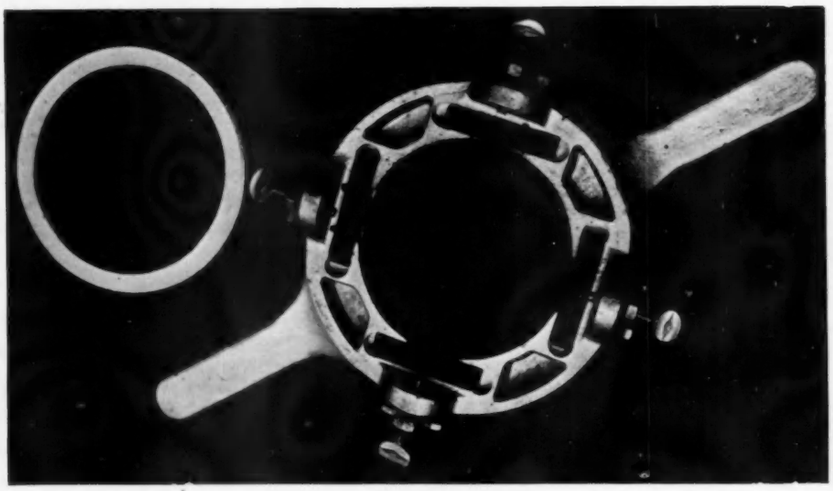

FIGURE 40
Tool-joint shoulder dressing tool and flatness test gage.

4. Wear On the Outer Surface of Tool Joints

Wear on the outer surface of tool joints has been present since the first joints were used. During the earlier days of rotary drilling, however, the tool joints and the drill pipe generally became worn out at about the same time and, therefore, no particular problem as regards salvage of one or the other was involved.

It is believed that this was due, in part at least, to drilling practices in effect at that time. Most of the pipe was run in compression, which caused it to "spiral" in the hole and thus contact the wall with considerable force. This naturally would result in greater wear on the outer surface of the pipe than occurs with present drilling conditions under which most of the pipe is operated in tension.

In this connection, two other changes made during recent years probably also have been responsible for much of the increased wear on tool joints, viz.: the reduction

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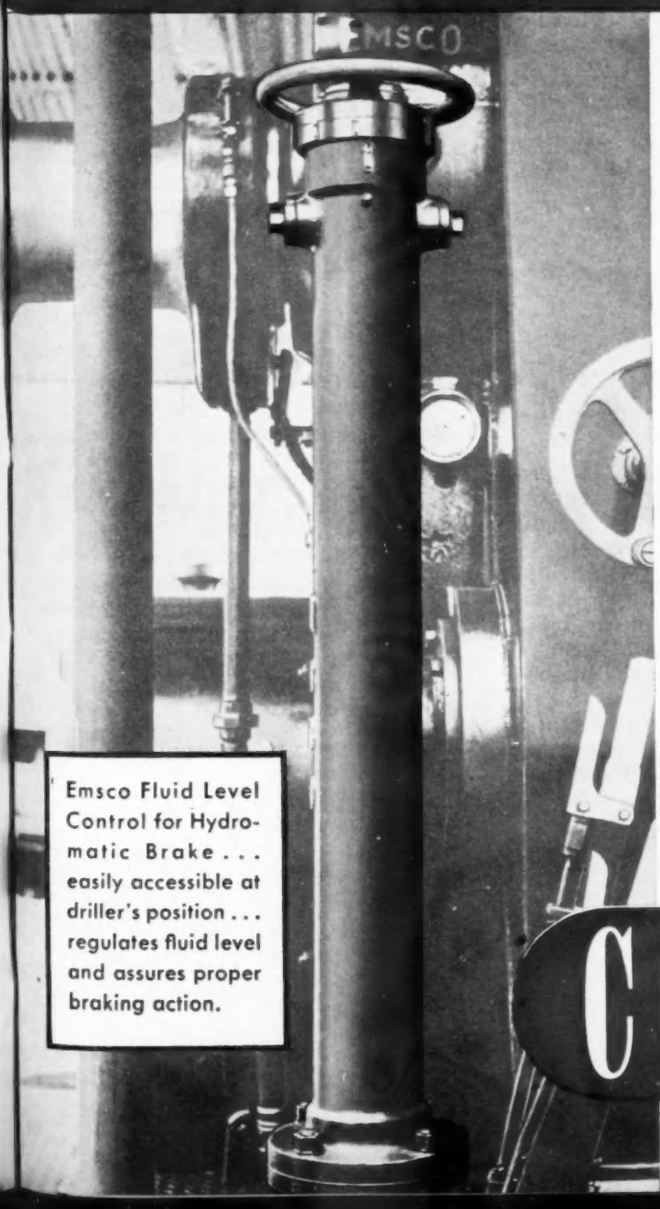

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in size of the hole drilled, and the introduction of the internal-flush type of tool joint.

As both of these changes are in the direction of reducing the clearance between the wall of the hole and the tool joint, it is unfortunate indeed that they should have occurred at the same time. The internal-flush tool joint, as the name inplies, was designed to eliminate the restriction in bore of the drill stem at the tool joints. In order to maintain reasonable strength of the joint it was necessary to increase the outside diameter, with resulting sacrifice in hole clearance as well as increased projection of the tool joint over the pipe—both of which generally increase the rate of wear on the tools joints.

The internal-flush type of joints was intended primarily for use where the softer formations were to be drilled, thus requiring large volumes of flushing fluid for efficient operation, and where wear on the outer surface of tool joints is not generally a serious problem. However, their use has been extended to some of the more abrasive territories where mud volume is not so important to rate of penetration, but where tool-joint wear is much more severe. Under these conditions, the use of this type of joint has not proved economical, and there is at this time a definite trend toward the use of smaller-bore joints even in some of the less abrasive territories.

It has been observed that the hardness and abrasiveness of the formation being drilled not only affects the rate of wear on the tool joints, but also materially affect the shape or contour of the worn surface. The softer formations usually produce "barrel-shaped" wear on tool joints, an extreme example of which is shown in Figure 41. Tool joints used in drilling the harder formations usually wear more nearly cylindrical, and in numerous instances it has been observed that the lower end of the tool joints become battered to such an extent as to result in a rather heavy peening or upsetting at the elevator shoulder, as shown in Figure 42. It is believed that this battering and upsetting is caused by the tool joints hitting against the wall of the hole as a result of transverse vibrations or whip in the drill stem (see Figure 11 in drill-pipe section of this paper).

It is difficult to explain the difference in shape of wear on tool joints in hard and soft formations. Some are of the opinion that "barrel-shaped" wear is due to erosion produced by the flow of mud and cuttings past the tool joints, and is more pronounced in the softer formations because of increased velocity resulting from higher rates of circulation. Others think that wear from this action is negligible, and are of the opinion that the tool joints tend to "ream" the hole to some extent, and in doing so they become partly imbedded in the wall of the hole. The softer formations being more easily "reamed" than the harder formations allow the joints to become more deeply imbedded in the wall of the hole—thus resulting in greater concentration of wear at the ends of the joint, particularly the lower or the advancing end.

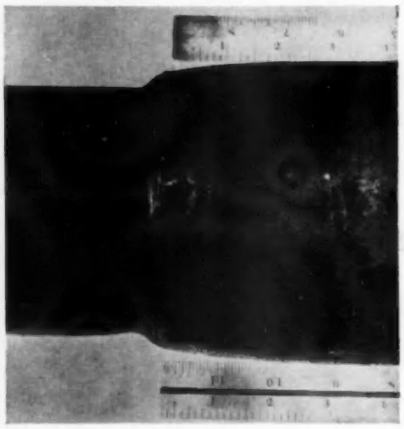


FIGURE 41

Extreme "barrel-shaped" wear on pipe end of a tool-joint box used in Soft-formation drilling.

"Barrel-shaped" wear would be expected to result also from rotation of tool joints in a "key seat" or during the formation of a key seat in the hole. As "key seats" are believed to be more prevalent in soft-formation territories, this may be a plausible explanation.

Quite frequently tool joints become worn eccentrically or wear excessively on one side of the joint. An example of this type of wear is shown in Figure 43. In the majority of cases wear of this type can be traced to the use of crooked pipe which causes a "crank" action in the hole, thus constantly presenting the same side of the joint to the wall of the hole and resulting in concentrated wear on that side.

However, in a few cases, eccentric wear has been experienced when the pipe was found to be quite straight.

As stated in the drill-pipe section of this paper, it is believed that this may be due to certain combinations of rotational speed and centrifugal "throw" which result in the same side of the tool joints (and pipe) rubbing continuously against the wall of the hole. Possibly the whole string is rotating, not as a straight line, but as a long spiral, in which one side (the inside of the spiral) is not touching the hole at all. The rather unexplainable part of this theory is why repeated trips in and out of the hole do not so change the "throw" as to present different sides of the tool joints to wear—and thus produce approximately concentric wear. However, the actual facts support the general theory.

In the majority of cases the best assurance of preventing eccentric wear on tool joints is to avoid the operation of crooked pipe.

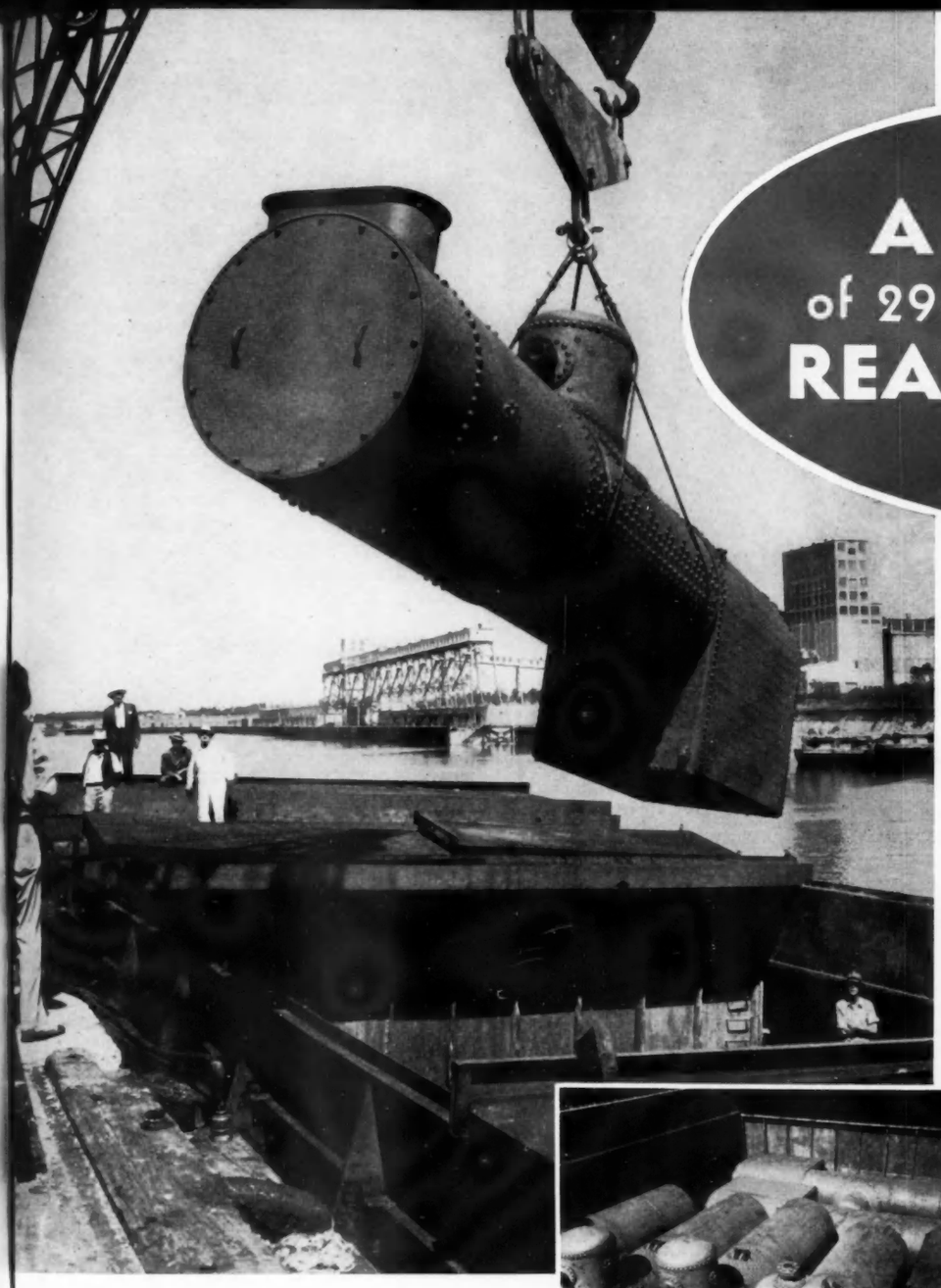
The necessity for making replacements of tool joints on drill pipe due to wear on the outer surface of the joints has proved very costly to the operators, and much work has been done to reduce this cost. The most practical methods which have been developed up to this time are:

A. The Use of Oversize Tool Joints

In some of the less abrasive territories where the average drill-pipe life is only slightly longer than that of the tool joints, a relatively small increase in the outside diameter will increase the life of the tool joints to equal that of the drill pipe, and thus eliminate the necessity of making replacements. When this can be done, it is obviously the most economical solution to the problem. In the more abrasive territories, however, where it is not uncommon to require two to three sets of tool joints per string of pipe, this method alone does not solve the problem completely. Also the benefits to be derived by this method are limited by the amount of increase in diameter which is practical and at the same time maintain sufficient hole clearance for satisfactory operation and to permit the use of fishing tools, washover pipe, etc.

B. Development of Shrunk-on Tool Joints

In recent years much work has been done to improve threaded connections between tool joints and drill pipe for the purpose of eliminating failures in the pipe at the last-engaged thread as well as for the purpose of simplifying the procedure connected with the installation of the tool joints on the pipe.



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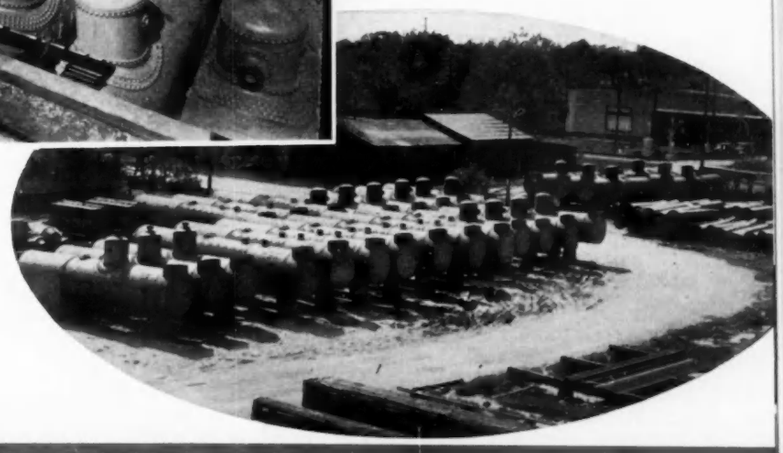

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FIGURE 42
"Cylindrical" type of wear on tool-joint box used in extremely hard and abrasive drilling. Note peened or upset condition of elevator shoulder at left.

As a result, tool joints which can be shrunk onto the pipe have been developed, thus eliminating the necessity of bucking on equipment for this work. As this method has simplified the equipment required for making original tool-joint installations, it is also possible to make replacements of worn joints at the rig with comparatively little expense to the operator. This type of tool joint, therefore, has met with considerable success in reducing the expense resulting from wear on the outer surface of tool joints.

C. The Use of Wear Subs Between the Tool Joints

Various types of wear subs have been tried, viz: double-pin, double-box, or pin-and-box types. Of these, the double-box sub has a definite advantage over the others in that, for a given length of wearing surface, the overall length of the sub is a minimum and, therefore, the cost is a minimum. The cost of the tool joints is the same regardless of the type of sub used; therefore, the overall cost is a minimum when double-pin tool joints are used with double-box wear subs.

Wear subs usually are made oversize on the outside diameter in order to provide additional protection to the tool joints as well as to increase the life of the subs themselves. Here again, as in the case of the use of oversize tool joints, the benefits to be derived are limited by the maximum diameter which it is practical to use. The principal advantage to this method lies in the extreme ease of making replacements. No special equipment is required, and replacements can be made on the rig, while pipe is being run, as worn joints appear in the string.

When new wear subs are installed in a string of used drill stem, the diameter of the subs, of course, will be larger than the tool-joint diameter; therefore, it is very important that the tool-joint shoulders be checked carefully for the presence of fins, bruises, galls, or any other defect which may prevent a uniform bearing between the shoulders and thus result in leaky connections or wabble failures.

Various methods have been devised for rebuilding the outer surface of wear subs when they become worn. The most commonly used of these methods are building up the outer surface with an arc-weld deposit, and by the application of strips or sleeves, shrunk on or shrunk on and welded. Although these methods have resulted in increased life of the subs, they have proved to be rather expensive, and in some cases considerable difficulty has been encountered due to warpage and distortion of the threads resulting from the welding heat. Also, in cases of eccentric wear, some difficulty has resulted from the sleeves or strips wearing through on one side and splitting or tearing off. Due to the lower cost of double-box wear subs, however, it is more economical, when they become worn to replace them with new subs, than it is to attempt to rebuild the outer surface. These rebuilding methods have been tried also on the tool joints themselves with about the same results.

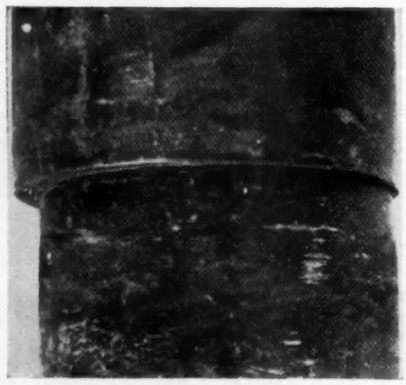

FIGURE 43
Eccentric wear on outer surface of tool-joint box.

D. The Use of Hard-Surfaced Tool Joints

The ultimate aim of hard-facing the outer surface of tool joints is to increase the resistance of the joints to wear to the point where they will last the full life of the drill pipe and thus eliminate the expense of making replacements. Although this procedure has resulted in definitely increased life of tool joints, the ultimate aim by no means has been accomplished fully, particularly in extremely abrasive territories.

The results of tests made up to this time indicate that tungsten carbide is the most suitable material for this purpose. Even with this extremely hard material, present indications are that it must be applied in fairly large quantity in order to result in an appreciable increase in tool-joint life. Inasmuch as tungsten carbide at this time is a rather costly material, and as present methods of application are slow and expensive, there is some doubt as to the overall economy of this procedure, but the possibilities by no means have been exhausted. Tungsten is now a critical or strategic material, however, and soon may be unavailable for this use.

Some interest now is being shown in the use of hard-surfaced wear subs which seems to offer some promise of success, and field tests also are under way on wear subs having the outer surface flame-hardened. Unfortunately, however, no conclusive results are as yet available on these tests.

Conclusions

Inasmuch as the average contractor or operator is interested much more in the prevention of trouble than in its causes, the authors have summarized herewith the best-known practices, gleaned

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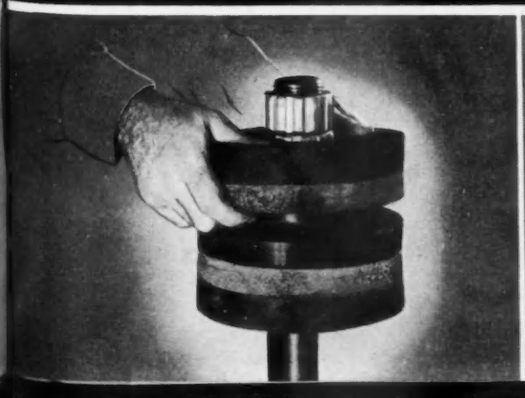

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from all available sources, observed wherever wells are drilled by the rotary method. The preventive measures are listed more or less in the order of their importance; but, of course, what is quite important in one area may be of much less importance in another.

A. To Minimize Drill-Pipe Troubles

1. Use sufficient weight in the drill-collar assembly to more than equal the weight carried on the bit, so that the drill pipe is always in tension. This practice is of highest importance in corrosive areas, to delay corrosion - fatigue failures. Also, it positively will prevent pure fatigue failures and will lessen notch-fatigue failures (from surface scars) in the non-corrosive rock-bit areas. It is of least importance in soft, fishtail areas, probably because the corrosion factor is at a minimum in such areas.

2. Keep the drill pipe straight, especially the lengths immediately above the drill collars. This, again, is of greatest importance in corrosive areas, but is highly important in any sort of drilling.

Keep a straightener on the rig, if necessary; and take care that drill collars, grief stems, and other such elements are straight. Optical instruments for checking the straightness of drill collars and grief stems are gaining favor, particularly in California.

Set the pipe as low as possible in the slips, to prevent crooking when making up or breaking out, and especially when using the automatic cathead. The smaller the pipe, the more easily it can be crooked by tonging, of course.

Run into the hole carefully, unless very free of obstructions, to avoid sudden hanging up of a bit, with possible crooking of the pipe.

Handle drill pipe with reasonable care while trucking, to avoid crooking, especially range 3 pipe; also while catlining into the derrick and when laying down for racking.

3. A very good practice, to insure against fatigue failures, is to move the bottom stand or bottom length of drill pipe just above the drill collar to the upper part of the string, and to keep doing this each time out of the hole. Then, if there is not quite enough weight in the drill-collar assembly, no one length of pipe will be run too long under bending fatigue conditions.

For many years it was thought that high-speed rotation was a very important factor in causing fatigue failures, especially in rock-bit drilling. Today it is recognized that speed is not limited nearly so much by the drill-pipe life as by the effect on other equipment, or by the overall cost figures.

In Turner Valley, where the drilling is considered to be very hard because of the number of rock bits used, 150 rpm to 250 rpm is the average rotating speed, and it may run above 400 rpm. In California one large operator considers 300 to 350 rpm to be an economical speed, and speeds higher than 500 rpm, and even 600 rpm, have been tried. In neither of these areas are there any alarming drill-pipe troubles.

However, as previously stated, it is suspected that there are some critical speeds which will give undue whipping, and resultant fatigue; but there seems to be no way of calculating what they are.

4. Avoid transverse scars on the pipe, as they are an exceedingly frequent cause of notch-fatigue failure. In some areas, particularly in hard rock-bit drilling, this is the most common cause of all drill-pipe failures, even in rather new pipe.

Use finely serrated spider slips, never the old-type which make sharp-bottomed circumferential grooves on the pipe.

Never allow drill pipe to turn in the table slips, but use backup tongs when there is insufficient drill pipe hanging in the hole. If the pipe is rotated, momentarily, with the table slips, be sure that it cannot turn and be scarred by the slips, even though they are of the best modern design.

Drill pipe should not be steel-stencil-stamped, except with especially designed stencils, and *never* marked with an electric arc.

Not much can be done to prevent scarring from rock-bit teeth and many other causes but, at least, such lengths can be discarded or degraded to less important drilling. Some scars can be filed off, which should be done with *longitudinal* file strokes.

5. Corrosion fatigue can be eliminated by chemical treatment of the mud, but ordinarily this is considered too expensive. Pending further study of the treatment of the drill pipe itself, at the mill, only a few helpful recommendations for care in the field can be made.

The most important, already mentioned, is to run enough drill-collar weight so that the drill pipe always will be in tension. This at least will remove the bending-fatigue part of the trouble, but it still leaves the corrosion part.

A possible help in decreasing the corrosion phase of the trouble would be to drill with heavier mud. Colloidal mud minimizes corrosion, but there has been only little field study of this suggestion.

A more definite help in minimizing corrosion is to keep the drill pipe free from the corroding formation salts while out of the hole. At least it is quite simple to flush out the inside of the pipe while racking the pipe between wells.

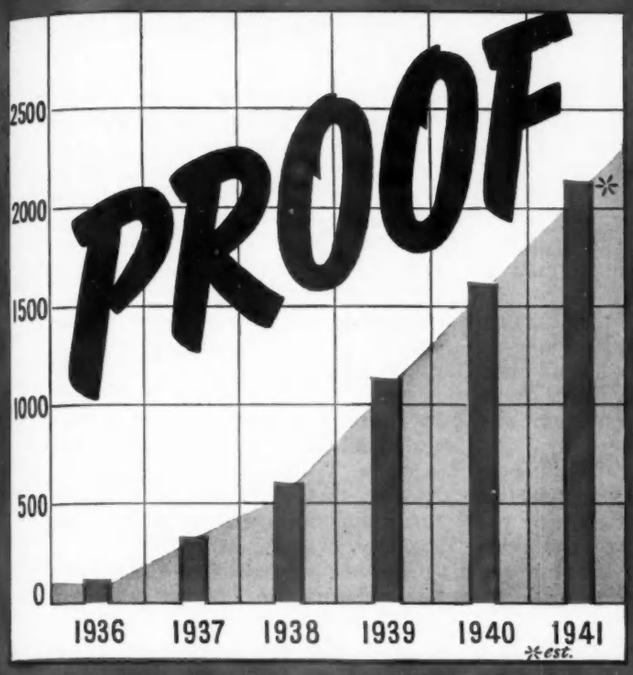
Another suggestion, but not a preventive of corrosion fatigue, is to inspect the pipe at fairly frequent intervals. This particularly means internal inspection to search for corrosion pits which are proceeding into transverse cracks, and it means also the discarding of lengths showing even the smallest of such cracks.

A service is available today which cleans the inside of the pipe with a wire brush, after which the inside surface can be viewed by a very ingenious optical method. By this method it is possible to distinguish positively between ordinary shallow corrosion pits and those which are becoming transverse cracks.

6. Suggestions for preventing trouble from worn pipe, collapsed pipe, pipe which has been fished out, etc., are almost too obvious to need mention in this summary. Here, again intelligent inspection between wells often can avert failures and costly fishing jobs.

The inspection well might be done whenever the string is laid down for tool-joint repairs or replacement. The pipe should be examined especially for crookedness, eccentric wear, slip marks, and all other sharp-bottomed surface scars.

7. When conventional API tool joints are screwed onto API drill pipe, the work should be done in a properly equipped shop. The threads should be cleaned carefully, lubricated adequately with a good quality of thread lubricant, and the joints should be made up at the proper number of revolutions per minute. Some torque - measuring device should be used to insure that the joints are screwed on with proper tightness to prevent leakage. Then, especially for rock-bit drilling, the tool joints should be welded to the pipe to insure against last-engaged thread failures. The welding should be done *before* the pipe is ever put in service. After thread failures have started to oc-



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UNIVERSAL ATLAS OIL-WELL CEMENTS

cur the welding will not always prevent cracks which have barely started from going on to complete failure in spite of the later reinforcement of the weld metal.

8. The mud pressure gage should be watched very carefully, during drilling. Any slight drop in pressure may indicate that a failure is just getting started; thus the pipe often can be pulled out of the hole before the crack proceeds to a complete break.

Instruments currently are being developed which automatically can give warning of very small cracks in the pipe or of leaks in the tool joints. One method is tied up with a continuous mud-analyzing service which successfully has predicted a number of pipe failures early enough to get out of the hole (J. T. Hayward).[3]

9. Stuck pipe never should be pulled beyond its yield point, except as a last desperate measure. The yield-strength figures for the various sizes, weights, and grades are furnished by the manufacturers; but before these figures are even approached, all known methods of freeing stuck strings should be tried. Some references to papers on this subject are given in the bibliography of this paper.

B. To Minimize Tool-Joint Troubles

1. Tong the tool joints tightly when going into the hole. A good practice is to use one wrap of the jerk line on the cathead for each inch of nominal pipe size: thus 3 wraps for 3½-inch pipe, 4 wraps for 4½-inch pipe, etc. This is one of the most important factors in the prevention of wabble failures.

When breaking out, check the joints for tightness by observing the force required. If they break apart easily, they should be bucked up tighter the next time they are made up.

2. Avoid damage to pin and box shoulders while the pipe is being hauled; also avoid damage from striking the box shoulders with the end of the pins when stabbing or when jumping the pins out of the boxes with the spring hook. The condition of the tool-joint shoulders is very critical, especially in the prevention of wabble failures and leaky joints.

Watch for "dry" or "muddy" pins, and with a ring gage check pin and box shoulders carefully for flatness. Whenever possible, remove high spots with files or with shoulder dressing tools. Joints which cannot be repaired in this manner should be reworked in a well-equipped machine shop.

Never switch a damaged pin into an undamaged box or vice versa, as this is most likely to result in increased rather than decreased trouble.

3. Use substantial thread protectors on tool joints when moving pipe, in order to avoid accidental damage to the threads and thus reduce galled or "frozen" pin and box connections.

4. When "breaking in" a new string of joints, it is good practice to tong them up by hand for the first few round-trips and then cathead them up tight. High-speed makeup with the spinning line on new joints is likely to result in galled or "frozen" connections.

5. Use a good-quality thread lubricant on tool-joint pin and box connections for normal drilling operations. Apply liberally to threads and shoulders, distributing the lubricant thoroughly with the brush. Do not depend upon rotation of the pin in the box during makeup to distribute the lubricant in the connection. The use of a good-quality lubricant on tool-joint pin and box connections is particularly important when breaking in a new string.

When exceptionally high torque is to be applied to the drill stem, a special lubricant should be used on the tool joints in order to develop a high coefficient of friction in the threads and shoulders, and thus prevent swelled or split-box failures. A lubricant consisting of 1 pound to 2 pounds of red lead per gallon of kerosine has been found satisfatory for this service.

6. Pay particular attention to the condition of the kelly-sub threads and shoulder. The continued use of a damaged kelly sub seriously may injure every box in the string.

7. Avoid forced makeup of improperly engaged threads. This often results in galled or "frozen" tool-joint connections.

8. Wear on the outer surface of tool joints entails much expense to the operators because, in many territories, it necessitates making several tool-joint replacements on the drill pipe. Not much is known that can be done to prevent this, but during recent years considerable has been done in the development of means of reducing this cost as outlined hereinafter.

Rebuilding the outer surface of worn tool joints reduces the number of replacements required. Although the cost of rebuilding the outer surface is less than that of new joints, the service obtained from rebuilt joints in most cases has not equaled that of new joints. Therefore, the economics of this practice can be determined only by a careful cost analysis.

Increased life of tool joints can be obtained by the use of oversize joints. The increase in life to be gained by this method is limited by the maximum tool-joint diameter which can be used safely; thus in some of the more abrasive territories this will not be sufficient to eliminate the necessity of making tool-joint replacements.

The use of shrunk-on tool joints has reduced the cost of replacing worn joints, and thereby has aided in reducing the overall expense resulting from tool-joint wear.

The rate of wear on tool joints actually can be reduced by the use of hard-surfacing. Tungsten carbide seems to be the most suitable material for this purpose, but due to the fact that the material itself and its application to the joint are both expensive, there is at this time some doubt as to the overall economy of this procedure.

A promising development in combating the tool-joint-wear problem is the use of wear subs between the joints. The principal advantage is that they can be replaced so readily at the rig, but here again only an accurate cost analysis can determine the overall economy of this procedure.

New developments in rubber protectors for use in open hole now are being exploited as a means of preventing excessive wear on tool joints. In the past a big objection to rubber protectors has been the difficulty of keeping them in the proper place on the pipe, and also of preventing them from becoming badly cut and torn when they are run in open hole. If the new developments can overcome these difficulties, it is believed that such protectors may be very beneficial in reducing wear on tool joints.

Eccentric wear on tool joints is usually due to the operation of crooked pipe, and the remedy, therefore, is obvious. Although instances are known in which eccentric wear has occurred in the pipe and tool joints even though the pipe remained commercially straight, there is no known remedy for this type of wear.

A point often forgotten is that a drilling string sometimes may be

subjected to abuse just in one well, or by just one crew, and later used normally, but in which troubles may continue to develop throughout the rest of its life. A simple example would be where one crew, being very careless in stabbing, damaged a number of the tool-joint box shoulders. This could lead to a succession of wabble failures and mud cutting throughout the whole string.

Or, suppose that on just one well old-type table spider slips were used which scarred the pipe with deep transverse slips marks. These marks easily could be the cause of numerous notch-fatigue failures, no matter how carefully the pipe was used thereafter.

The point is that eternal care with a drilling string, as in the case of all material, is the price of trouble-free service. And, actually, as most operators and contractors are learning rapidly, it is really not a high price at all.

Acknowledgement

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Practical Operating Hints for

1. RIGGING UP
Pipe Rack Support Permits Unitization

All-welded post with four-way pedestal and sockets for braces forms sturdy rack support.

CORNER posts for supporting drill pipe racks are made from line pipe by one drilling contractor, and provide a sturdy base for the rack while offering a permanent part of the rig equipment and a useful item that expedites rigging up time. The posts are welded throughout and are equipped with wide bases to permit setting on the ground or on planks without need of additional bracing or guys.

The base is two pieces of 4-inch pipe thirty inches long, welded together in such manner as to form an "X," and designed to set flat on the ground. Welded vertically at the cross is a three-foot section of 6-inch pipe, constituting the upright post for the corner. The top of this pipe carries a semicircular groove as socket for the horizontal joint of 4-inch drill pipe which is used as one end of the rack. Four corner posts support two parallel joints of the drill pipe, and these are spaced about 25 feet apart with drill pipe suspended between.

Two sockets are provided on each corner post for tying the two ends of the rack together. They are built of 2½-inch pipe cut off to a length of only 2 inches and welded alongside the upright post, one placed about 6 inches from top and the other close to bottom of the post. Joints of 2-inch pipe the proper length with ends bent down are used to tie the rack together, with their bent ends placed in the sockets provided. Usually, the 2-inch pipes cross, as the most effective brace is obtained by placing one end in the top socket on one post, and the other end in the bottom socket on the opposite post.

2. FUEL HANDLING
Fueling Hose Serves Diesel Unit Needs

WHERE diesel fuel is stored in tanks set at some convenient point around the rig without elevated foundation or support to give gravity feed to the tanks of the power

Divided hose with pressure-closed nozzles permits selective fueling of Diesels.

units, a small hand-operated gear-type pump, set into the stub pipe at the outlet from the tank, provides the necessary drive to move fuel from storage to running tanks.

The distribution line, branching to the drawworks and slush-pump units, terminates a short distance from each, with the remaining distance spanned by hoses, each equipped with spring-sealed valve to prevent waste.

Knowing the displacement of the pump, it is easy for one man to insert the hose end into the fuel tank, prop the valve open, and move the required amount of fuel by counting the revolutions of the handle.

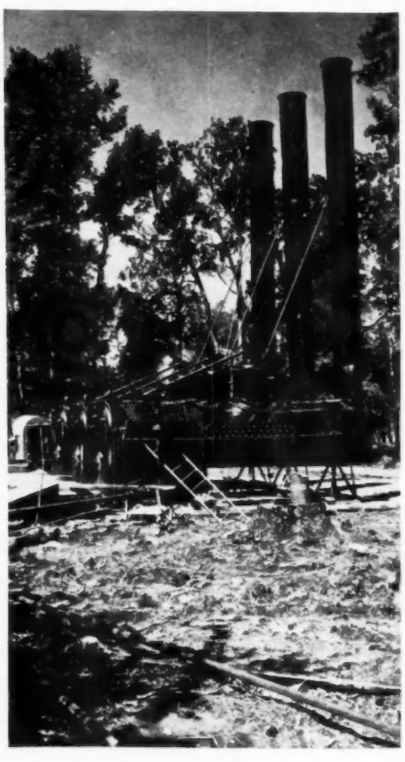
Where two men are available for refueling, the tanks on the engines may be filled without waste by operating as with a filling-station hose—the man at the fuel tank simply allowing the valve to snap shut when the tank is filled.

3. BOILERS
Rigid Stack Braces Eliminate Guy System

BY CARRYING stack braces not only to the steam dome of the unit on which that particular stack is mounted, but also by taking a second brace from each of the outer stacks—on a set of three boilers—to the center dome, and then by tying the three stacks together with short horizontal braces at the level of the point of attachment of the long braces, a compact and yet exceptionally sturdy stack unit is formed which will withstand high winds and considerable vibration even more successfully than the usual system of guys and deadmen.

The use of overhead braces maintains all the space around the boilers clear from obstructions which, in case of an emergency at night, might result in fall and injury.

Lugs on the stacks and on the upper rivet ring of the steam domes provide points for attachment of the braces which, in turn, carry eyes through which bolts or pins with split cotters may be passed.

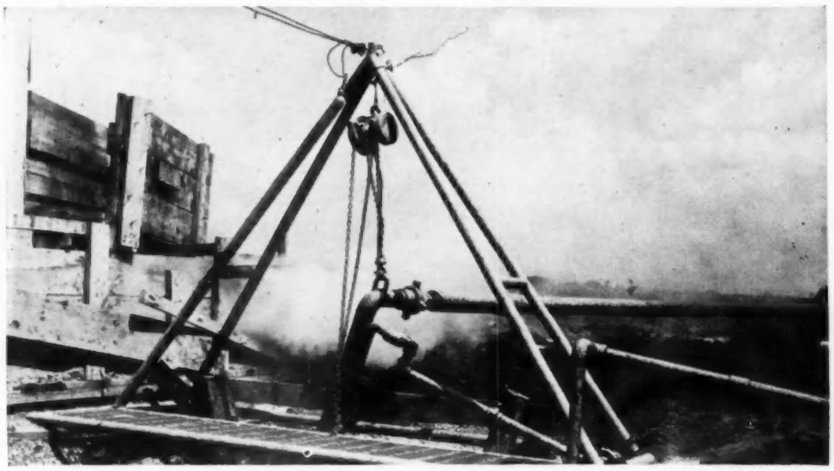


Symmetrical spacing and use of stiff braces simplifies group stack support.

THE DRILLING RIG . . .

4. MUD HANDLING

Crane and Chain Hoist Permit Regulation of Shale Jetting Device for Maximum Flow



Welded framework converging over shale pit carries hoist for regulating setting of steam-powered transfer jet system to permit maximum removal.

A SUPPORT for the chain hoist to regulate height of mud pit jet and facilitate transfer of mud from settling pit to storage pit, consists of four legs arranged in two pairs, converging 8 feet above the mud pit. The legs are 2-inch pipe approximately 10 feet long with the pairs spaced 10 feet apart at the bottom to span a small mud pit. Each pair has its top ends joined at the vertex and the bottoms spaced 2 feet apart and braced by means of a 12-inch section of 2-inch pipe midway from top to bottom. The legs are welded at the bottom to a rectangular arrangement of 2-inch pipe that forms skids, being set on one side of the skid. On the side which does not support the structure, the skid carries grilled safety flooring to allow space across the pit to manipulate the hoist.

Attached to the apex of the structure is a hoist bearing a chain, the lower end of which is fastened by means of a hook to an eye provided on the jet pipe. By manipulating the chain, the jet is raised or lowered to its proper position over the pit for jetting out the mud, a steam line being provided to supply the jetting force.

The apex of the frame provides handy lifting point for truck line when dismantling or loading for a shift to new location.

5. SAMPLING

Split Flume Serves as Sample Catcher

Baffle at end of section permits trapping heavy particles for classification.

FOR greater convenience in trapping samples before they have reached the shale shaker and possibly been altered by the elimination of the finer particles, one contractor uses a split flume in his mud ditch and permits the material to settle there.

In operation, mud is normally run through either or both sides of the flume, with the weirs at the lower or run-off end open to permit sweeping of the area.

When samples are to be caught, flow is directed through one side of the device, with the weir at the lower end closed to provide a section where flow is checked and the particles given time and opportunity to settle out. Flow of the mud after depositing cuttings to a greater or less extent is over the weir and again into the mud ditch.

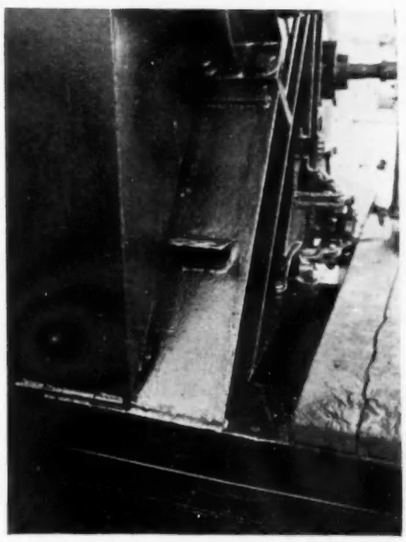
To remove the samples from the device, the flow is diverted to the other channel, and the weir lowered to permit the mud and more fluid portion of the trapped material to drain into the ditch. The settlings in the box are then sampled as extensively as desired, and the unwanted residue flushed into the stream to be worked over the shale shaker and delivered to the shale pit.

6. LUBRICATION

Drawworks Step Aids Oiling Schedule

TO PERMIT easier access to the oil openings at the top of the draw works, a step, some 6 x 4 inches in area, is welded to the angle leg forming the back portion of the end frame of the unit.

This step, set some 15 inches above the floor, adds enough height to permit the floorman to fill the lubricators and maintain supervision of his job. It does away with the hazard introduced when the chore is attempted with makeshift blocking, scaffolding, or even a pipe wrench—jaws closed to grip the flange of the steel beam—which sometimes is used as temporary support when oiling 'round.



Heavy steel plate bent at proper angle and welded to frame aids in lubricating.

KICK OFF those LOADED WELLS

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OTIS TUBING PERFORATOR AND PACKOFF ANCHOR

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THE Otis Wire Line Tubing Perforator and Packoff Anchor provide a means for kicking off loaded wells where casing annulus is sealed with a packer. The job is done under pressure without pulling the tubing, breaking the packer seal or exposing the lower pay to mud or water.

The operation is simple. The Otis tubing stop is set in the tubing above the packer. It serves as a base for the perforator and later as an anchor for the packoff section. A back pressure valve is dropped in on top of the stop to prohibit the mud or water back of the packer from contaminating the pay formation. The tubing is then perforated. All mud or water is circulated out of the casing annulus through the perforations. The back pressure valve is pulled and the removable packoff section set in place with the orifices matching the tubing perforations to control the rate of flow through them.

The column of oil is started flowing by gas pressure applied through casing annulus from an overlying formation or from an outside source. Conventional Otis running and pulling tools are used to run and pull the packoff section and anchor stop. Experienced Otis Service Crews are available on short notice to do this work quickly, efficiently and economically.

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HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Texas December Production To Be 1,500,760 Barrels

Texas allowable daily production for December has been established at 1,555,192 barrels by the railroad commission, which represents an increase of 21,909 barrels over the allowable fixed by the commission on November 1.

Although the commission fixed the monthly allowable at a figure 75,492 barrels greater than the Bureau of Mines estimated consumer demand (1,479,700 barrels), the commission estimates that actual net production will be 3.5 percent less than the established allowable, or about 1,500,760 barrels per day.

The commission again provided eight shutdown days, the same number as were allowed in November; however, because the month is longer, operators will be permitted to produce on 23 days instead of 22 days. While this does not increase the daily average allowable materially, it will increase the total output for the month of December as compared with the month of November. Fields will be shutdown on December 6, 7, 13, 14, 21, 25, 28 and 30. Only minor changes in field allowables were ordered.

The daily allowables by districts are set up in the comparative table below:

District	Gross Allowable	Allowable After Shutdown	Shutdown Exempt Production	Total Net Allowable
1 Southwest	24,216	17,967	3,596	21,563
2 Southwest	104,282	77,371	1,238	78,609
3 Gulf Coast	354,125	262,738	16,354	279,092
4 Southwest	197,054	146,201	6,423	152,624
5 East Central	23,395	17,358	2,504	19,862
6 East Texas	73,940	54,859	13,818	68,677
6 E. Texas Fld	511,248	379,313	3,100	382,413
7 West Central	36,017	26,722	3,987	30,709
7C West Central	22,691	16,835	2,661	19,496
8 West Texas	363,192	269,465	10,114	279,579
9 North Texas	159,810	118,569	13,396	131,965
10 Panhandle	118,265	87,745	2,858	90,603
Total	1,988,235	1,475,143	80,049	1,555,192

Demand for higher production from Texas oil wells was reflected in testimony offered at the statewide proration hearing held in Austin last week. The requests, however, were confined largely to increases in particular fields.

Nominations were up 55,364 barrels, to 1,947,403 barrels for December. A report from the Bureau of Mines, filed after the hearing, indicated 1,479,700 barrels as the consumer demand for Texas oil during December, an increase of 25,000 barrels daily.

Gulf Asks Big Allowable For High Grade Lube Stock

A net allowable of 400 barrels per day for each of its wells producing from the Ordovician in the Sand Hills field, Crane County, was requested by Gulf Oil Corporation at a Texas Railroad Commission hearing last Friday. The wells are now permitted to produce only 39 barrels each. There are 22 wells in the field.

Sweet crude produced is converted into high grade aviation lubricants, and is produced nowhere else in Texas except in the Rodessa field. The oil will be stored in the field until about 100,000 barrels has accumulated, then it will be moved to Port Arthur for refining.

This is the highest allowable requested in the past few years. Because of the array of attorneys and engineers present at the hearing, some observers thought suit may be brought if the commission declines the request. This would be the first suit based on market demand primarily. The oil would be used for defense purposes entirely.

Hearings Scheduled By Texas Commission

The Texas Railroad Commission has scheduled several hearings in the near future. On November 24 it will take up an application for an increase in the allowable from the Darst Creek field in Guadalupe County.

At a hearing on November 25 the commission will hear an application for adoption of special rules for the Crockett field in Crockett County. On November 28 a similar hearing will be held for the Powell field, Navarro County.

On November 29 the commission will consider an allowable increase application for the Seminole field in Gaines County.

On December 1 special rules for the area surrounding the J. A. Chapman No. 1 Fowler in Montague County will be discussed.

Special rules for the Casa Blanca field in Duval County will be discussed at a hearing on December 2.

Field rules for the Merkel field, Taylor County, will be considered at a hearing set for December 3.

On December 5 the commission will consider operating rules for the Lake Creek field in Montgomery County.

News Index

General:

Allowables 49
Associations 50
Prices ..... 50 and 53
Washington 13

Markets-Statistics 52

Men in News 68

U. S. Field Operations:

Arkansas 60
California 60
Completions 61
East Texas 57
Illinois 55
Kansas 55
Louisiana Coast 59
Michigan 60
Mississippi 60
Nebraska 55
North Louisiana 59
North Texas 56
Oklahoma 55
Rocky Mountain 53
Southwest Texas 58
Texas Gulf Coast 58
West Texas 56
Wildcat Development 66

Control

Premium for East Texas Salt Water Injection

The Texas Railroad Commission has entered an order effective January 1 designed to encourage the injection of salt water in the East Texas oil field. Under the new plan, a premium is granted for the water injected, amounting to an allowance of one barrel of oil for each 50 barrels of salt water returned to the sand; however, no well may get more than eight barrels credit on this basis. It is thought that this amount will be ample to repay the producers for the cost of any equipment that may be needed, and to enable them to pay any charges that might result from the establishment of a salt water disposal system to which their wells would be connected.

In assigning the extra allowable to other wells which are producing the premium oil, not more than six barrels may be assigned to one well. All water injected must be metered, and every three months well status reports must be filed to show the results of tests made on such wells during the last 30 days of the quarter.

The commission order does not disturb the method used in an order issued in 1940 which allowed those companies converting oil wells to injection wells to assign the allowable formerly granted the injection well to other producing wells on the same lease. The new order likewise provides that before any well can be used for salt water purposes, a hearing must be held and full information supplied.

Omitted from the order was the so-called "transfer clause" which operators urged as a means of producing all of the premium oil allowed. The plan contemplated the transfer of this oil assignment to wells located on properties other than that from which the salt water is produced.

California Producers Submit Production Plan

A production plan for California has been worked out by the production committee for District 5 and forwarded to Washington for the approval of the Attorney General's office and the Petroleum Coordinator. Committee Chairman E. E. Pyles has requested its early approval. No details of the plan have been made public and are not expected to be until advices from Washington indicate its approval, or further procedure to be followed.

Michigan Official Delays Decision on Well Spacing

A final decision on proposals for 40-acre spacing units on future wildcats and new pools in the Michigan basin area has been postponed by the State Oil Advisory Board for additional study. P. J. Hoffmaster, director of the conservation department, said board members and himself are particularly

anxious to study "the trend of thought" and recommendations on wider spacing in relation to steel saving that come from the November 18 meeting of District No. 2 production committee.

While 10 acres is the base pattern for drilling in the state the trend in the basin area has been to 20-acre units the past two years.

Prices

Kentucky Operators Press For Better Crude Price

Through efforts of the Kentucky Oil and Gas Association, headed by Nick Shiarella, Owensboro, Kentucky, oil men are organizing to push for higher crude prices in Kentucky.

Kentucky congressmen were asked to confer with Price Administrator Leon Henderson.

"Unless we get a fair increase for crude," Shiarella said, "thousands of our stripper wells will be shut down, which will mean the loss of thousands of barrels of oil still in the ground."

Current price in Kentucky fields is $1.32 per barrel, five cents less than that paid for Illinois crude. There are between 16,000 and 17,000 stripper wells in Kentucky, producing about 17,000 barrels daily.

Extend Price Quiz To Pacific Coast

An investigation of California crude oil prices is to be made by the Office of Price Administration in cooperation with the Office of Petroleum Coordinator, according to Richard Fenton, California Stripper Well Association. Investigation of California prices will follow similar studies of crude prices undertaken in the Mid-Continent, Fenton stated.

King Oil Company Sells Properties for $7,500,000

King Oil Company, which is producing above 3000 barrels of net oil daily in North Texas and Texas Panhandle, has contracted to sell its holdings to the Pan Oil Company for a consideration of about $7,500,000, according to R. A. King, president. John A. Bell, Jr., of Pittsburgh, is president of the Pan Oil Company, organized early this month with Delaware charter. When the trade is concluded the Phillips Petroleum Company will operate the properties under a contract, according to reports.

Prior to January, 1936, King Oil Company was known as Dixon Creek Oil & Refining Company, and the bulk of its properties were then in the Panhandle. King Oil Company has full and part interest in 735 wells.

Monroe-Memphis Gas Line Plans to Add More Pipe

Memphis Natural Gas Company announced last week that starting by next June it will build 62 miles of line paralleling its Memphis-Monroe gas line trunk. Two 1000-horsepower compressor units will also be added.

World-Wide Developments

Mexican Oil Company Plans Big Lay Off

Efrain Buenrostro, manager of Petroleos Mexicanos, the national oil company, is quoted in dispatches from Mexico City as declaring the company has ordered an immediate layoff of 5000 workers of its total personnel of about 18,000. The move, under consideration since last spring, is considered necessary as an economy measure to lighten the company's persistent operating deficits. Several weeks ago when the discharge order was pending, representatives of the labor unions were reported to have threatened a general strike to resist the order.

Buenrostro declared last week that his organization will spend 10,000,000 pesos in 1942 for oil exploration between Laredo and Tia Juana as well as in Lower California. He also announced plans for construction of a pipe line between Tampico and Manzanillo, this line to pass through Celaya and Guadalajara with refineries at those points.

Canadian Tar Sand Mining Makes Progress

Crude oil, gasoline and Diesel oil are being obtained from an entirely new source in Canada and by the use of an entirely different method than the drilling of oil wells in Alberta, the provincial oil and gas conservation board announced recently.

Strip mining of the tar sands at Fort McMurray in the far north of Alberta by Abasand Oils, Ltd., resulted in the production of 3440 barrels of crude, 192 barrels of gasoline and 1162 barrels of Diesel and burner oil from 4027 tons of sands mined in September, the board reported.

Since mining of the tar sands was commenced on a commercial basis on May 19, 1941, to the end of September, 18,852 tons of sands produced 16,928 barrels of crude oil, 1069 barrels of gasoline and 3479 barrels of Diesel and burner oil.

Another Big Gas Well in Saskatchewan

In a report from Kamsack, Saskatchewan, it was stated that another big gas well has been completed. This well shows greater volume than the one reported earlier in the summer and it is believed the wells grow stronger, going north on the Assiniboine River. In order to secure a market for the gas in towns in the vicinity, a suspension bridge has been built for the pipe line over the river.

Imperial Oil Company in Saskatchewan plans four deep tests in the coming spring. Independent Oil Ventures Limited of Regina is also preparing to drill three wells, with the opening of the 1942 drilling season.

Imperial Oil Company has been granted exploration rights on 1,000,000 acres in south central Saskatchewan, 45 miles south of Regina, covering territory down to the U. S. border. Back in 1930 and on to 1936 Petroleum Engineering Company coducted an extensive survey over all parts of the province, and as a result filed on 10,000 acres of freehold land checkerboarded over the Blackfoot structure. This was never developed, but was held by the company. As interest in the operations of the major combination spread it was discovered that the holdings were in the midst of the new surge of development in the province. Oil Ventures was formed with a capital of 3,000,000 shares and the response has been sufficient to date to assure the three wells being drilled by the company next spring.

Associations

Drilling Contractors Re-Elect Officers

All officers except one were re-elected at the annual meeting at Dallas recently of the American Association of Oilwell Drilling Contractors. J. E. Brantly, Los Angeles, is president; Harry L. Edwards, Houston, vice president at large; Warren C. Churchill, Tulsa, vice president for rotary drilling; Ben McGraw, Cronville, Illinois, was elected vice president for cable tools; C. J. Paine, Dallas, treasurer; Brad Mills, Dallas, executive secretary.

Directors at large are: Will I. Lewis, Mt. Vernon, Illinois; R. A. Stacy, Shreveport, Louisiana; Leslie Fain, Oklahoma City; M. J. Delaney, Dallas; J. E. Brantly, Los Angeles; C. J. Paine, Dallas; Harry L. Edwards, Houston; W. S. Churchill, Tulsa.

Members of the executive committee include J. E. Brantly, Harry L. Edwards, Warren S. Churchill, John J. Klise, C. J. Paine, Leslie Fain, Will I. Lewis.

Contract Awarded for Katy Gasoline Plant

Contract covering construction of a gasoline plant at Katy, Texas, has been awarded to Stearns Rogers Manufacturing Company of Denver, Humble Oil & Refining Company has revealed; and work on the project is scheduled to begin immediately.

Designed to process upward of 200,000,000 cubic feet of gas daily, the plant will cost approximately $3,000,000. It will make in excess of 5000 barrels of finished products per day, and 200,000,000 cubic feet of stripped gas will be returned daily to the producing structure. The plant will be located on a 40-acre tract about four miles northwest of the town of Katy.

In addition to the Humble company, 11 other operators in the field have worked out a unitizing program for producing the gas. These companies are: Atlantic Refining Company, Darby Petroleum Corporation, Lion Oil Refining Company, Magnolia Petroleum Company, Sinclair Prairie Oil Company, Stanolind Oil & Gas Company, Sun Oil Company, Tide Water Associated Oil Company, Amerada Petroleum Corporation, the Ohio Oil Company, and Union Producing Company.

The first 8 companies named above have joint interest with the Humble company in the new plant, which Humble will operate.

COLD OR HOT

REGIONS THAT KNOW ice and snow sometimes get sweating hot—and freezing cold is no stranger in the lands where hot dances are born. But even crazier weather must be taken as it comes, by the exposed equipment in oil field operations. Better play safe ...use Conoco Coglube.

Conoco Coglube comes in six different grades, ranging from semi-fluid to semi-solid. So no matter what the weather—no matter what the speed or load your equipment faces—there's a grade of Coglube that's right for the job.

Conoco Coglube combines extreme adhesive and cohesive qualities with the ability to form a tough shield of *lubricant* on the surface of exposed metals. Coglube cushions gear teeth against the wear and tear of shock, load and speed. It penetrates the weave of wire rope and keeps each wire in each strand sliding instead of scraping, despite the most severe stretch or bend.

Exposed metal surfaces like pipe threads in service or in storage, can also have their own economical Coglube protection against rust and corrosion.

Plenty of maintenance men get hot under the collar if their supply of Coglube is allowed to run low. That's cold fact. But do you blame 'em? Continental Oil Co.

CONOCO CONOCO COGLUBE

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Vincennes

IOWA
Chariton
Clarinda
Creston

KANSAS
Arkansas City
Chanute
Eldorado
Great Bend
Herington
Hutchinson
Independence
Lyons
Marion
McPherson
Newton
Oxford
Russell
Wichita
Winfield

LOUISIANA
Crowley
Houma
Lafayette
Lake Charles

MISSOURI
Bethany
Kansas City
Maryville
St. Joseph
St. Louis
Trenton

MONTANA
Billings
Great Falls
Lewistown
Shelby
Winnett

NEBRASKA
Falls City

N. MEXICO
Artesia
Farmington
Gallup
Hobbs

OKLAHOMA
Ada
Altus
Ardmore
Bartlesville
Chickasha
Duncan
Edmond
Elk City
Enid
Guthrie
Muskogee
Oklahoma City
Okmulgee
Ponca City
Seminole
Tulsa

TEXAS
Alice
Amarillo
Big Spring
Borger
Breckenridge
Brownwood
Corpus Christi
Corsicana
Dallas
Electra
Fort Worth
Gainesville
Galveston
Henrietta
Holliday
Houston
Longview
Marshall
McAllen
McCamey
Mexia
Midland
Mineral Wells
Nocona
Odessa
Olney
Pampa
San Angelo
San Antonio
Seagraves
Sweetwater
Tyler
Wichita Falls

UTAH
Salt Lake City

WYOMING
Casper
Glenrock
Greybull
Lovell
Lusk
Medicine Bow
Rawlins
Thermopolis
Worland

Product Stocks Increased; Production and Runs High

Both production and processing of crude oil continued above 4,000,000 barrels daily in the week ended November 15, the wells having turned out about the same volumes as in the previous week, while daily runs to stills were 65,000 barrels higher. In reflection of the large runs, there was production of major refined products in excess of current consumption, and additions were made to the stocks of gasoline, light fuel oil, and residual fuel oil, statistics of the American Petroleum Institute showed. Gasoline stocks were increased 635,000 barrels; gas oil and distillate fuel oil storage went up 340,000; and resistual fuel oil inventories were expanded 178,000 barrels.

Crude oil storage was reduced from 243,340,000 to 241,829,000 barrels in the week ended November 8, the Bureau of Mines reported.

At the rates of the November 15 week, production and runs of crude were well in line with current heavy consumption, both having been about 14 percent greater than a year previous.

United States crude oil output of 4,086,850 barrels daily was 14.3 percent above the production of 3,576,550 barrels a day in the corresponding week of last year.

Runs to stills at 4,010,000 barrels a day in the week of November 15 were 14.2 percent above the daily average runs of November last year, which were 3,512,000 barrels. The new rate represented 92.9 percent of rated capacity. In the week ended November 8, 1941, runs averaged 3,945,000 barrels daily, or 91.2 percent of capacity.

The 635,000-barrel addition to gasoline stocks in the week ended November 15 contrasted with an increase of less than 100,000 barrels in the corresponding week last year. Having risen to 83,412,000 barrels the inventory was 4,000,000 barrels or 5.1 percent larger than a year previous. East Coast stocks were reduced 321,000 barrels, compared with a reduction of 571,000 barrels last year, and on November 15 they totaled 19,013,000 barrels against 18,148,000 a year before. Middle Western stocks are 1,500,000 barrels above a year ago; Oklahoma-Kansas-Missouri storage is up 1,600,000 barrels, Inland Texas nearly a million barrels, and Coastal Louisiana, North Louisiana - Arkansas, and the Rocky Mountains slightly. California shows a small decrease from a year ago, and the Texas Gulf Coast a decrease of over 1,600,000 barrels.

The 340,000-barrel addition to stocks of gas oil and distillate fuel contrasted with withdrawal of similar amount in the corresponding week last year. At the new level of 54,983,000 barrels, the stocks were 7,000,000 barrels (14.7 percent) above a year previous. Of that increase the East Texas accounts for 5,000,000 barrels, holding now 22,375,000 barrels against 17,452,000 a year ago. There was a 333,000-barrel addition in the week of November 15, compared with one of about 200,000 barrels in the like week last year. Appalachian stocks are slightly larger than a year ago, and those of the Middle West are nearly as large. The Oklahoma-Kansas-Missouri area shows a half-million-barrel increase, and there are gains also for Inland Texas, Louisiana, Arkansas, and the Rocky Mountains, while California shows an increase of over 2,500,000 barrels. The Texas Gulf Coast is down 2,000,000 barrels from a year ago.

The 178,000-barrel increase in stocks of residual fuel oil in the November 15 week compared with a withdrawal of half a million barrels in the corresponding week last year. Present stocks are 10,000,000 barrels (9.4 percent) smaller than those held a year ago, but California shows a decrease of nearly 11,000,000 barrels and the country east of California a small increase. The East Coast district has had relatively light stocks, but the situation is being improved, and in that area, there was in the November 15 week a 280,000-barrel addition, against a 465,000-barrel decrease in the like week last year. The total of 11,523,000 barrels for the district November 15 was only about a half million barrels under the corresponding total of 12,114,000 barrels last year. Appalachian stocks are practically the same as a year ago, and those of the Middle West are 1,200,000 barrels larger at 4,713,000. Stocks in the Mid-Continent and on the Gulf Coast are about the same as a year ago, but those in the Rocky Mountain area are smaller.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 30	4,004,700	4,070,000	249,413,000	81,672,000	45,351,000	95,052,000
September 27	4,060,000	3,980,000	246,649,000	81,003,000	49,950,000	95,251,000
October 4	3,860,750	4,015,000	246,144,000	[6]80,870,000	49,553,000	96,016,000
October 18	[1]4,110,550	[1]4,120,000	243,605,000	82,584,000	52,403,000	95,800,000
October 25	4,098,800	4,060,000	242,261,000	83,343,000	53,183,000	95,295,000
November 1	4,071,200	4,080,000	243,340,000	83,223,000	53,766,000	96,527,000
November 8	4,096,100	3,945,000	241,829,000	82,777,000	54,643,000	95,815,000
November 15, 1941	4,086,850	4,010,000	.....	83,412,000	54,983,000	95,993,000
November 15, 1940	3,576,550	[8]3,512,000	[4]261,931,000	79,340,000	47,911,000	105,909,000
Change in past year.	+14.3%	+14.2%	—7.7%	+5.1%	+14.7%	—9.4%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, Nov. 9, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] November, 1940, daily average.

Markets Continue Strong; Prices Remain Frozen

Markets continue generally strong, but with all prices frozen under authority of the Office of Price Administration. Whereas some minor adjustments in wholesale prices of products have been made from week to week heretofore, the past 10 days have brought no changes whatever in published prices.

Aside from the governmental control, market conditions themselves possibly are now tending to maintain prices at unchanged levels, as supplies have become more free in most districts, following alleviation of the tanker scarcity by return of boats from Britain.

In reflection of record-breaking crude runs to stills, stocks of the major refined products are being made more adequate, as attested by increases during the week ended November 15 in storage of gasoline, heating oil, and heavy fuel oil.

The large runs to stills continue to put pressure on the crude markets, however; and as crude stocks have continued to diminish, competition for

crude has increased, and postings doubtless would have been raised before now if the price control authorities had not interfered.

However, agitation for increasing crude stocks already has resulted in liberalizing of allowables in Texas, effective November 1, and still more generous quotas are scheduled for December; and larger production henceforth may be expected to act as a brake on the movement toward higher crude price levels. That would be particularly true if other states, also, particularly Louisiana and Kansas, should adopt the more liberal attitude regarding allowables.

Meanwhile, no action has come from OPA on the petitions for higher posted prices of crude in Pennsylvania or in the Mid-Continent.

A meeting was held at Washington early last week between OPA officials and producers of Pennsylvania grade crude regarding the proposed increases in postings for that oil. But no decision was announced thereafter, although it was rumored that some of the government officials were in favor of lifting the ceiling on Pennsylvania grade.

Congressmen from Pennsylvania, West Virginia, New York, and Ohio, states producing Pennsylvania grade crude, were being furnished printed copies of the brief submitted to the OPA by producers in support of the 23-25 cent raise of last August, which was rescinded on demand of the price agency.

Similarly, Texas producers were asking their congressmen to use their influence toward gaining approval of crude raises in that state.

Wholesale Prices of Refined Products in Principal Markets

	Range Last Week (Cents a Gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	6¾	7¼	...	...
Mid-Western Tank Car:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	7⅜	7⅞	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8½	...	...
Min. 80 Octane, '39 Research	8½	9	...	...
Gulf Coast:				
60 Octane unleaded	...	...	...	...
65 Octane unleaded	...	...	...	...
68 Octane unleaded	6¼	6½	...	...
70 Octane unleaded	6¼	6⅝	...	...
72-74 Octane leaded	...	...	...	...
Min. 80 Octane, '39 Research	6¾	6¾	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	5⅛	5⅛	...	...
F.O.B. Br'kenr'ge, Tex.	4¾	4¾	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅜	4¾	...	...
42-44 water white	4⅛	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅜	4¾	...	...
42-44 water white	4⅛	4⅞	...	...
New York Harbor	5⅜	5½	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4¼	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	4¼	...	...
No. 3	3½	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3⅞	4⅛	...	...
No. 3	3½	3⅝	...	...
New York Harbor:				
No. 1	5⅜	5½	...	...
No. 3	5¼	5¼	...	...

	Range Last Week (Per Bbl.)		Changes from Week Before	
HEAVY FUELS				
Oklahoma Refineries:				
No. 6	$0.90	$0.90	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$0.95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.65	$1.80	...	...
New York Harbor	2.15	2.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	22½	23	...	...
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	14½	14½	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	25	26	...	...
Neutral Oil No. 8 Color, 150 viscosity at 70°, 25 pour test	31	31	...	...

United States Crude Oil Production Jumps to New Peak

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable (Barrels Daily in Nov.)	BARRELS DAILY FOR WEEK ENDED Nov. 15	Nov. 22
TEXAS:				
Texas Panhandle	.....	.....	79,500	96,300
North Texas	.....	.....	104,800	116,200
West Central Texas	.....	.....	31,500	33,500
West Texas	.....	.....	287,100	333,400
East Central Texas	.....	.....	82,700	90,500
East Texas Field	.....	.....	370,200	438,400
South Texas	.....	.....	217,200	252,200
Texas Gulf Coast	.....	.....	290,300	336,800
Total Texas	1,454,700	1,479,618§	1,463,300	1,697,300
CALIFORNIA:				
Long Beach	.....	.....	38,500	38,900
Midway-Sunset	.....	.....	53,300	46,000
Kettleman Hills	.....	.....	37,800	39,700
Wilmington	.....	.....	89,500	87,200
Others	.....	.....	447,600	442,000
Total California	626,700	613,200*	666,700	653,800
OKLAHOMA:				
Oklahoma City	.....	.....	80,500	81,950
Seminole Area	.....	.....	‡110,200	112,050
Others	.....	.....	226,200	233,100
Total Oklahoma	469,400	428,000	416,900	427,100
ILLINOIS:				
Salem	.....	.....	77,000	69,800
Louden	.....	.....	60,700	61,000
Centralia	.....	.....	9,000	8,950
Other New Pools	.....	.....	257,000	244,600
Old Pools	.....	.....	12,100	12,000
Total Illinois	408,100	.....	415,800	396,350

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable (Barrels Daily in Nov.)	BARRELS DAILY FOR WEEK ENDED Nov. 15	Nov. 22
LOUISIANA:				
North Louisiana	.....	.....	82,050	81,850
South Louisiana	.....	.....	270,200	265,700
Total Louisiana	333,200	347,058	352,250	347,550
KANSAS	253,500	257,000	256,950	254,250
NEW MEXICO	115,200	116,500	116,400	118,100
EASTERN STATES:				
Pennsylvania Grade	71,000	.....	73,450	74,550
Others, Eastern	23,300	.....	18,500	18,500
Total Eastern States	94,300	.....	91,950	93,050
MOUNTAIN STATES:				
Wyoming	83,400	.....	81,350	76,200
Montana	20,600	.....	21,200	21,250
Colorado	5,200	.....	5,150	5,300
Total Mountain States	109,200	.....	107,700	102,750
MICHIGAN	47,400	57,550†	60,950	61,150
INDIANA	20,500	.....	18,800	17,900
ARKANSAS	76,500	73,653	72,350	72,750
MISSISSIPPI	55,100	.....	64,300	80,150
NEBRASKA	6,200	.....	6,100	6,400
‡Total 8 Prorated States	3,376,000	3,372,579	3,405,800	3,632,000
Total United States	4,070,000	.....	4,110,450	4,328,600

* Recommendation of Conservation Committee of California Oil Producers.

† No definite state allowable fixed under prescribed regulations; figure shown here represents actual production in 4 weeks ended October 25.

‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

§ Calculated daily average of actual production at beginning of month, allowing for usual under production of 3½ percent below net allowable, which was figured at 1,533,283 barrels daily as of November 1. However, allowable normally increases as new wells are Completed, and consequently, actual daily average production for month may be expected to be slightly greater than average as calculated for November 1. Under November order, most Texas fields were ordered shut down November 2, 8, 9, 11, 16, 23, 27 and 30.

Factual Data

[*Continued from page 24*]

proximately 105,000,000 barrels, which represented oil that did not remain in one place for more than a few days. That amount included about 11,000,000 barrels on leases for maintaining adequate deliveries to pipe lines, 21,000,000 barrels actually contained in gathering and trunk pipe lines, 12,000,000 barrels contained in minimum working tanks for main trunk line operations, 10,000,000 barrels of essential terminal storage, at gathering line terminals, main line transhipment points, and main line terminals, 4,000,000 barrels in transit to domestic refineries by barge or tank ship, and 47,000,000 barrels at refineries, representing a minimum safety factor of about two weeks' supply. In view of the characteristics of petroleum operations and the organization of the industry, however, the bureau stated, it probably was necessary to have at least 100,000,000 barrels of contingent reserves above ground, in addition to the 105,000,000 barrels of true working stocks, to meet all of the industry's varied needs. The figures indicated, therefore, that the industry needed stocks of at least 200,000,000 barrels.

The report pointed out in conclusion that although the survey indicated a minimum of crude stocks ranging from 200,000,000 to 250,000,000 barrels as necessary, no exact level of desirable crude stocks could be fixed without a detailed analysis of individual company positions and policy and without more accurate information than that available concerning potential reserves and the extent to which a program of underground storage had replaced above ground storage. Without such information, it was stated, a considerable factor of safety in stocks undoubtedly is necessary in an industry in which production and demand are subject to such rapid change.

Production Shoots Up as Texas Idles Only One Day

In reflection of the fact that Texas fields were closed in only one day during the week, instead of the usual two, daily average crude oil production of the United States shot upward over 200,000 barrels and set a new all-time record of 4,328,600 barrels in the week ended November 22. Output in the previous week had been 4,110,450 barrels daily. The new rate was 250,000 barrels in excess of demand as estimated by the Bureau of Mines.

Texas fields were shut in only on November 16, one of the 8 scheduled shutdown days for the state during the month. Consequently, Texas production jumped to a daily average of 1,697,300 barrels, from 1,463,300 the week before.

Oklahoma also contributed a little to the increase, in averaging 427,100 barrels daily, although the state still was underproducing estimated demand 40,000 barrels daily.

California declined about 13,000 barrels to 653,800 daily, but exceeded demand over 25,000 barrels. Illinois was 12,000 barrels under demand in averaging 396,350 daily. Louisiana output, off 5000 barrels to 347,550 daily, was 14,000 above demand. Kansas, down 2700 barrels to 254,250, virtually conformed with demand. Mississippi hit a new high of 80,150 barrels daily, in a further increase, and was 25,000 barrels above its demand estimate for the month.

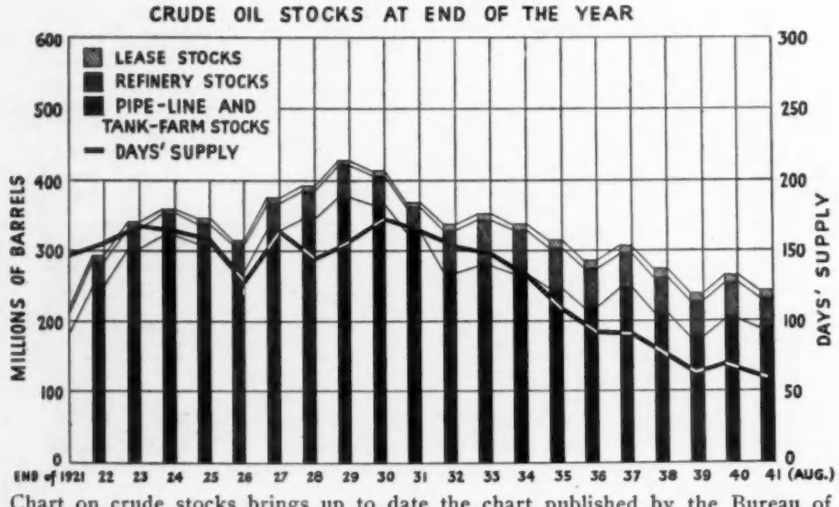


Chart on crude stocks brings up to date the chart published by the Bureau of Mines in its Report of Investigations 3417, September, 1938, on a survey of crude oil in storage. Days' supply curve measures nation's refinable crude on December 31 in terms of daily average demand in succeeding month, January, the demand for crude being found by adding domestic production and imports and by taking into consideration changes in stocks.

September Oil Output Again Sets Record

Breaking the all-time record for the second successive month, crude oil production in September averaged 3,981,500 barrels a day, 67,000 barrels above the August average and 337,000 barrels above that of September, 1940, according to the Bureau of Mines' monthly review.

Production for the month, the bureau announced, was lower than for August — 119,446,000 barrels against 121,354,000 barrels—but was a good 10,000,000 barrels above the 109,337,000 barrels produced in September of last year.

For the first three quarters of the year, output totaled 1,026,389,000 barrels, an increase of 5,384,000 barrels over the 1,021,005,000 barrels produced in the corresponding period in 1940, the report showed.

Daily average production in Texas declined during the month, mainly because there was one less operating day than in August, but output in Illinois registered another large increase and rose well above the 400,000-barrel mark, while Coastal Louisiana, Kansas and Mississippi set new records and the come-back of Michigan was continued.

The gain in crude production for the month exceeded the increase in runs to stills and exports of crude declined, with the result that the withdrawal from storage — about 4,000,000 barrels — was less than in August, the bureau stated.

Daily average crude runs to stills, however, increased for the sixth successive month, reaching 4,049,000 barrels in September, an advance of 31,000 barrels over August.

"The domestic demand for motor fuel in September was 58,995,000 barrels, or 13 percent above last September's total," the bureau reported. "Exports of motor fuel (shipments to non-contiguous territories partly estimated) totaled 2,475,000 barrels compared with 1,907,000 barrels a year ago. Natural-gasoline stocks declined materially but finished and unfinished gasoline stocks declined only 414,000 barrels, or considerably less than normal. However, the total on September 30, 79,963,000 barrels, was about 2,000,000 barrels less than on hand a year ago."

Production of aviation gasoline declined from 1,969,000 barrels in August to 1,876,000 barrels the following month, but domestic demand declined from 1,267,000 to 1,109,000 barrels and exports dropped from 777,000 to 483,000 barrels, although transfers to regular gasoline increased from 53,000 to 126,000 barberls, with the result that there was an increase in stocks, from 7,363,000 to 7,521,000 barrels.

The demand for distillate fuel oil was 12 percent higher than in September, 1940, but even greater gains were made in other products such as kerosine, lubricating oil and residual fuel oil, the bureau commented.

Bureau of Labor Statistics figures placed the price index for petroleum products in September at 61.7, compared with 61.4 in August and 48.9 in September of last year. The crude oil capacity represented in the report was 4,541,000 barrels, giving an operating ratio of 89 percent, against 90 percent in August and 83 percent in September, 1940.

U. S. FIELD OPERATIONS

Illinois Basin

Coles County Discovery Swabbing From Aux Vases

Pool opener completed in Coles County; Effingham County wildcat testing McClosky; outpost to Edwards County field testing McClosky; Wayne County wildcat rigging tools to drill plug; Jasper County wildcat shows for pool opener; outpost to Hamilton County field flows.

Coles County: Carter Oil Co.'s Haybrook 1, E½ SE SW 2-13n-7e, north of Mattoon, swabbed 45 barrels of oil and a barrel of water in 21 hours from Aux Vases at 1832-40 ft prior to shot. Only other producer in county is small McClosky well completed by Carter two years ago south of Mattoon.

Effingham County: Gulf Refining Co.'s B. Kralman 1, SW NW SW 11-8n-6e, testing upper McClosky at 2506 ft, lower McClosky showed water.

Edwards County: Tide Water Associates' Provident Mutual Insurance Co., C E½ NE SE 13-1s-10e, a half mile south of the Bone Gap field, testing upper McClosky after water and scum of oil were recovered in a test of lower McClosky. Total depth is 3205 and casing was set at 3205 ft.

Wayne County: Swan-King Oil Co.'s Spencer 1, prospector pool opener six miles west of the West Fairfield pool, C W½ SE NE 28-1s-6e, rigging tools to test McClosky saturation at 3167-70½ and 3201-10 ft.

Jasper County: Craft and Powers' C. E. Wade 1, C W½ SW NW 5-5n-10w, near St. Marie, six miles from production, showed 1200 ft of oil on a drill-stem test opened one hour in McClosky topped at 2829 ft; total depth 2939 ft.

Hamilton County: Cameron Oil Co.'s Smith-Lockwood Community 1, NE SW NW 24-6s-5e, a half mile south and a half mile east of other production in the Rural Hill pool, flowed 384 barrels in 11 hours following 60-quart shot in Aux Vases at 3090-3123 ft.

Saline County: F. M. Summers Roberts 1, SE SW NE 6-8s-7e, cleaning out and testing McClosky at 3030-37 ft after 500-gallon acid treatment; an earlier production test in Aux Vases sand was unsuccessful.

Magnolia Petroleum Co.'s Molinarolo 1, SE NW NE 8-8s-7e, offset to county's only producer, a small McClosky well, set a squeeze job after water encroached during a test of McClosky at 2965-75 ft.

Richland County: E. G. Nolf's Sterchi 1, W½ NW NW 6-4n-14w, 10-acre location north of a recent small McClosky pool opener, came in flowing 800 barrels a day from McClosky at 3032 ft after acid.

G. H. Blankenship's George 1, NW NE SW 23-4s-1w, dry through McClosky at 1613 ft. There is no production in the county.

Indiana

Posey County: Carter Oil Co.'s Maier 1, C N½ NE SW 1-7s-14w, new pool-opener 1½ miles northwest of Mt. Vernon, swabbed 307 barrels in eight hours from Cypress at 2438-48 and from Waltersburg at 1965-2015 ft. From the Cypress sand only the well swabbed 256 barrels in 24 hours after shot. Casing then was perforated with 60 shots opposite Waltersburg and well was produced from both horizons.

First offset to the new discovery, Sinclair-Wyoming Oil Co.'s Hageman 1, C N½ NW SE 1-7s-14w, cemented casing at 2463 ft to test Cypress saturation at 2466-83 ft, prior to testing about 37 ft of Waltersburg.

East of Mt. Vernon, Sinclair-Wyoming Co.'s Kleinschmidt 1, SW SW SE 12-7s-13w, offset to Haynes-Thomas Scherer 1, recent discovery well completed in the Tar Springs, was drilling at 2200 ft, headed for the McClosky. Tar Springs in Kleinschmidt 1 was dry.

Vanderburgh County: R. B. Settle's Edmonds 1, SE SW NW 16-7s-11w, wildcat five miles southwest of Evansville, was drilling with rotary at 1500 ft. It will be a McClosky test.

Gibson County: Possibility of two pays for the new Hazleton field was indicated as Walter Miller's Kerr 2, SE NW NE 25-1n-10w, set casing to test Salem lime saturation at 2101-05 ft. Other shows were found in the McClosky at 1782-86 and 1864-69 ft.

A pool-opener midway between Mt. Carmel, Illinois, and Patoka, Indiana, R. D. Brown's Antell 1, C NE SE 20-1s-11w, was setting casing for production test. Hole was drilled with cable tools, and filled with oil from McClosky at 2258-62 ft. Best swab test recovered 177 barrels of oil in four hours. It is six miles from nearest production.

Kentucky

Union County: Sun Oil Co.'s Sam Reyburn 2, Pennsylvanian sand discovery well near Spring Grove (SE 20-0-18), pumped 115 barrels in 22 hours on initial test, at 1330-42 ft. Sun's Reyburn 3, an offset, was drilling at 1270 ft. There are seven other operations in the field, either drilling or located.

Oklahoma

New Oil Zone Found In North Bristow Field

New oil zone may revive old North Bristow field; Hotulke pool being defined; Konawa outpost showing for producer; Gulf starts important Cimarron County wildcat.

Creek County: Mid-Continent Petroleum Corp. and D. W. Franchot's Farris 3, SEc 36-17n-8e, new zone discovery, may revive interest in North Bristow pool, well drilled to 3093 ft in Dutcher sand and swabbed 52 bbls oil in 5 hrs while cleaning out, original Bristow pay zone is Bartlesville sand. Deep Rock Oil Corp.'s Meadors 1, SE NE NW 16-15n-7e, new Wilcox sand discovery near Bristow, cleaning out after 15-qt shot at 3985 ft, well flowed 100 bbls oil while cleaning out in 12 hrs.

Pottawatomie County: Alma Oil Co.'s Nadeau 2, C SE NE 24-9-4e, defines northeast corner of Hotulke pool, test drilled to 4352 ft in Simpson dolomite for no shows and was being plugged. Big Chief Drilling Co. et al's Kessinger 1, NW SW SW 25-9-4e, on southeast flank of pool, drilled to 4212 ft in Hunton lime for slight oil show and salt water, plugged back 2 ft failed to squeeze water, plugging.

Seminole County: Ramsey Petroleum Co.'s Harjo 1, NW SE SE 24-6n-6e, east outpost to Konawa pool, drilled to 4179 ft, plugged back perforated 177 shots in Booch sand at 1565-1612 ft, well showing 250,000 cu ft gas and 20 bbls oil daily, now cleaning out.

Cimarron County: Gulf Oil Corp.'s Cox 1, C SE SE 35-2n-8ecm was a new and important wildcat for the Oklahoma panhandle, deep test now spudding with drilling crew on way from Michigan.

Kansas

Another New Pool Opened In Barton; One Looms

Barton County test opens 35th oil field for Kansas during current year; Bitikoger pool extended; another new Barton area looming; prospective Reno County pool opener abandoned.

Barton County: Helmerich & Payne's Unruh 1, C W L SW NW 17-20s-15w, 1½ mi east of Pawnee Rock pool, is Kansas' 35th oil pool opener of 1941, drilled to 3845 ft in Arbuckle lime, well received state potential of 585 bbls oil daily; another new pool appeared in prospect for the county at Aladdin Petroleum Co.'s Brewer 1, C W½ SW NE 23-20s-15w, 3⅝ mi southeast of Pawnee Rock pool, drilling plug at 3720 ft to test good show of oil in Arbuckle dolomite, may open new producing area.

McPherson County: E. B. Shawver et al's Weaver 1, C S½ NE NW 1-20s-1w, extends Bitikofer pool one location south, drilled to 2917 ft in Mississippi chat, well received temporary state potential of 75 bbls oil daily.

Reno County: Simpson Oil Co.'s Paine 1, SW NE SE 5-20s-10w, 3½ mi southwest Peace Creek pool, prospective pool opener, being plugged, test drilled to 3849 ft in Viola lime topped at 3840 ft, showed for oil producer but water encroached and filled hole 2715 ft.

Holl and Branine's Warner 1, northeast flank Raymond pool, Rice County, produced estimated 2000 bbls 11 hours, flowing. Hole bottomed 3124 ft in Kansas City Lansing. This multi-zoned pool has no producers of this caliber, so present well may be considered a freak.

Nebraska

Third Barada Well Swabs 100 Barrels Day

Third well added to new Barada pool; Ohio to deepen Falls City producer; Nemaha wildcat finds water.

Richardson County: Skelly Oil Co.'s Roesch 3, C W½ SW NW 36-3n-16e, third producer for operator's new Barada pool, drilled to 2424 ft in Hunton lime topped at 2393 ft, perf casing 2403-

24 ft, swabbing est 100 bbls daily, to acidize; operator's Merz 1, C E½ NE NE 35-3n-16e, rigging up; operator's Steinbrink 1, C E½ SE NW Sec 36, drilling below surface casing; Ohio Oil Co.'s Sandrock 1, NW NE NW 20-1n-16e, early Falls City pool producer drilled by Pawnee Royalty Co., being deepened from 2260 ft in Hunton lime topped at 2214 ft; operator's Bucholz 9, NW SE SW 17-1n-16e, drilling 1235 ft; Oscar Johnson et al's Dowell 1, wildcat northwest of Salem, in 31-2n-15e, drilling 1200 ft.

Gage County: Nelson Drilling Co.'s Edius 1, C W L E½ SW 5-3n-7e, wildcat 3 mi east of Beatrice, underreaming 12-in casing 1015 ft.

Nemaha County: Continental Petroleum Co.'s Gauchart 1, SW NW NE 26-6n-13e, 6 mi northwest of Auburn, abandoned after finding water in Hunton lime at 2031-2127 ft.

Sarpy County: H. Hough et al's Timm 1, C S L SW SE 15-13n-12e, southwest of Papillion, shut down at 597 ft.

Rocky Mountain Area

Important Lance Creek Discovery Is Indicated

Possibility of a substantial extension or the discovery of a separate oil pool 2 miles south of Lance Creek field, Wyoming, brightened as test cored saturated Basal Sundance sand. Rocky Mountain wildcatting continued upsurge with 2 starts in Wyoming, one in Colorado, one in Montana. Depth record Montana well Baker-Glendive continues disappointing in deep zones cooling prospects of wildcatting in Dakotas where 8 million acres under lease.

South Lance Creek: Cow Gulch Oil Co.'s Nelson 1, C SE SW 19- 35n-65w, 2 miles south Lance Creek field, Niobrara County, Wyoming, td 5500 ft, 7-in csg set 5272 ft, perforating to test Basal Sundance saturation 5085-5119 ft. Cow Gulch holds 10,000-acre block surrounding well. Deep objective lower member Leo (Pennsylvanian) 5500 ft plus.

Deep Baker Test: Montana depth record well, td 9678 ft, Carter Oil Co.'s Unit 1, C SW SE 19-4n-62e, pb and testing through perforations 7-in set on bottom, recemented opposite zones in Madison 8320-50 ft, dry or water yielding. Continued disappointing results of deep Baker-Glendive Anticline test, Fallon County, eastern Montana, bodes no good for any extensive wildcatting in Dakotas where 8 million acres are leased.

Lost Soldier: Pointing to Tensleep pool extender Lost Soldier field, Sweetwater County, southwestern Wyoming, Sinclair-Wyoming Oil Co.'s Lost Soldier-A 102, SEc 3-26n-90w, elevation 6943 ft, completed for 280 b/d clean oil, top of Tensleep 3967 ft, hole bottoms in sand 4230 ft. Just 550 ft NW Sinclair's extension test, Hughes 8, SWc 8-26n-90w, elevation 6937 ft, dr 3676 ft. Sinclair rur Lost Soldier 104, SW NW 11-26n-90w, inside loc.

GORDON PRINGLE, geologist with the Michigan Geological Survey, has resigned to become assistant geologist, Michigan division, of Ohio Oil Company. George Thomas, former assistant in the Michigan division, has been transferred to the home office in Findlay, Ohio.

West Texas

Two Pecos County Tests Promise Opening Fields

Discovery in Ellenberger pending in northeastern Pecos County, and Delaware prospect in extreme west portion county showing for producer after exhausting water. Todd deep pool scored big natural producer from Crinoidal. Yoakum County prospect disappointing. Major extension for Winkler County.

Pecos County: Gulf and L. H. Wentz's L. H. Millar 2, C NW SE H&GN Sec 43, Blk 11, 4½ miles south of Girvin and 8½ miles northwest of Taylor-Link shallow field, coring 4330 ft to establish Ellenberger-granite contact before running pipe to complete. Logged more than 100 ft oil and gas pay in Ellenberger, topped near 4150-ft level, elevation 2534 ft, and drill-stem test yielded 3,500,000 gas with good spray 45-gravity oil. Small amount water accompanying this flow believed from rotary fluid. Millar 2 is on 7071-acre lease owned 50-50 by the partnership, and is 1½ miles north by west of Millar 1, which established unusual structural relief for the area in entering granite at 4532-38 ft, elevation 2577 ft, with 36-ft section of dry detrital overlying igneous beds.

Delaware Strike: Pure Oil Co.'s T. P. Land Trust 1-A, C SW SW T&P Sec 31, Blk 49, Tsp 10, 22 miles west of Fort Stockton, carrying 3350 ft fluid, mostly 40-gravity oil with b.s., while drilling sand with tools at 5101 ft. Initial test in Delaware lime 5055-82 ft, 7-in 5040 ft, yielded sulphur water and oil scum. Deeper drilling established top of sand at 5082 ft, elevation 3311 ft, while the upper water virtually exhausted. Commercial producer likely to follow nitro shot. Company holds lease on 16,500-acre block, and will continue explorations regardless of outcome this test.

Crockett County: Amerada et al's Todd 1-F, C SE SW GC&SF Sec 25 and west offset biggest well in Todd deep pool, flowed 388 bbls 41-gravity oil natural 3 hours open tubing, perforated 5714-5806 ft and 5818-72 ft opposite saturation in Crinoidal, topped 5695 ft. Partnership's Todd 1-D, west offset to pool's north extension well, abandoned in Ellenberger 6279-6367 ft. Area has 13 producers that are dependent upon tank truck shipments to pipe line station at Ozona for market.

Winkler County: Magnolia's Walton-State 20, wildcat between Kermit and Keystone fields, showing very little fluid after recovering 180-bbl oil load used with 500 gals acid under 1900 pounds pressure without breaking down formation, perforated 79 shots 4860-4900 ft in lower Clear Fork, topped 4740 ft. This first try for deep production in county drilled to 8445 ft, and quit short of Ordovician goal because of extremely hard chert below 7740 ft in Silurian. Sam Weiner et al's Halley-Texaco 1-B, near C N½ NW NE PSL Sec 7, Blk B-11 and about mile east of 2800-ft production in Halley area, flowed 370 bbls 33.5-gravity oil, gas-oil ratio 2100/1, ¾-in choke, following 460-quart nitro shot in sandy-lime 3002-3217 ft, elevation 2797 ft. This deeper pay previously uncovered by small well in southwest corner same section.

Sand Hills: Gulf et al's Tubb 6-A, south offset to Ellenberger production in south portion of main field, failure in Ordovician at 5887 ft, and plugged back to 3600 ft to try for gasser. Entered Simpson 5760 ft and Ellenberger 5857 ft for abnormal structural dip, possibly due to local faulting. Gulf et al's Tubb 2-B, C NW SW PSL Sec 28, ¼ mile north of 6906-bbl producer, flowed rate 50 bbls 36.6-gravity oil hourly through tester from Ellenberger 5644-65 ft, then cemented 5½-in 5640 ft, elevation 2464 ft. Humble et al's Tubb 2-B-X, C E½ NE SE PSL Sec 19, Blk B-32, mile southeast of Ellenberger production, coring dry lime 5735 ft, elevation 2553 ft.

North Basin Prospects: L. C. Harrison and Tobe Foster's Steck 1, 3½ miles northwest of Lubbock County's discovery pumper, drilling dry lime and anhydrite 5130 ft, upper Clear Fork barren. In Bailey County, Broderick & Calvert, Inc. and Amon Carter's Hayward 1, projected 6600-ft test, encountered 1600 ft salt water in deepening with cable tools below 7-in casing seat at 4004 ft to 4130 ft, and will change back to rotary. Anderson-Prichard Oil Corp.-American Drilling Corp.'s Ellwood-Honolulu 1, 8 miles north of Levelland, drilling dry lime 4205 ft, topped San Andres 3957 ft, elevation 3427 ft. Sinclair Prairie's Kleiner 1, Yoakum County wildcat and 3½ miles northwest of Ownby sector of Waples-Platter pool, drilling water zone 5558 ft, cemented 7-in at 5400 ft on strength oil saturation 5420-36 ft. Anderson-Prichard and Osage Drilling Co.'s Clayton-Johnson 1, Borden County, failure after yielding 1800 ft salt water following 1000-gallon acid treatment through perforations at 4265-4320 ft. No fluid appeared from earlier acid treatment of perforations at 4060-4100 ft in 5½-in stub casing cemented at 3988-4503 ft. In Briscoe County, Phillips Petroleum Co.'s Montague 1 drilling lime 5050 ft.

North Texas

Montague County Deep Test Flowing From "Viola"

Montague County deep wildcat responds to acid. North extension assured Benton-Holmes (Bowers) pool. Second Ellenberger producer for Consolidated pool. Hunt Oil Co. expands wildcat operations.

Wilbarger County: J. A. Wood et al's M. L. Womack 1-E, SWc H&TC Sec. 1, Blk 7, near center of Consolidated pool and ½ mile west of Ellenberger discovery, flowed 102 bbls oil 3 hours ¾-in for completion, used 1000 gallons acid through perforations dolomite saturation 4298-4306 ft. Originally completed in regular 3800-ft Strawn in 1939, and when deepened cemented 342 ft 5-in liner at 4303 ft. Water table in Ellenberger erratic as this confirmation well plugged back from water at 4325-29 ft, while discovery completed without water from saturation 4300-04 ft and 4369-81 ft.

Montague County: Continental Oil Co.'s Winder 1, 2 miles east of Stoneburg, exhausted water that appeared on initial test from saturation at 6512-16 ft; 6553-87 ft and 6600-10 ft, and flowed oil by heads after using 2000 gallons acid. Latest test credited the discovery with making 90 bbls oil and 10 bbls acid residue in 11 hours, with gas vol-

ume gaining. Production is considered from Mississippian, topped at 6504 ft, but the zone has been called Viola by some core analyists. The Viola is seldom recorded in the district, and heretofore has not produced. Winder 1 is 4 miles northwest of recent 6238-ft oil strike by Walter Gant, and bulk of intermediate acreage is held by the two operators. Pace Oil Co.'s Gilbert 1, SE part 53½-acre E. A. Maynard Survey, paved the way for ½ mile north extension for Benton-Holmes pool, in recovering 500 ft oil when tester was used on Strawn sand at 3013-18 ft.

Wildcats: Hunt Oil Co.'s Halman-Pure 1, first of a trio of tests proposed for northwestern Wise County, drilling 2080 ft, and operator starting Stack 1, southeast corner of Adam Johnson Survey, A-1330, near Chico. In Denton County, Hunt Oil Co.'s Jones 1 drilling shale 4320 ft. Magnolia's Borden 1, northeastern Jack County, reconditioning hole to try and land protection string 7-in on bottom at 6590 ft to continue to Ordovician. In Montague County, Bruce Sullivan et al's Johnson 1, 4 miles southeast of Montague, drilling shale 5870 ft, having deepened from 4920 ft, and Youngblood-Foree and Stogner's Meadors 1, 2 miles southwest of St. Jo, drilling 5070 ft, projected to 6500-ft and 6000-ft depths, respectively.

Archer County: Kenneth Van Allen et al's Kelly 1, northeast corner Blk 68, Harris Subdiv and 5½ miles west by north of Archer City, cemented 5½-in 5045 ft to perforate saturation in Bend, topped at 4933 ft, bottomed in dry Ellenberger 5525-5637 ft. Phillips Petroleum Co.'s Reilly-Pendry 1, 2½ miles south of Dundee, drilling cherty-dolomite at 6300 ft, having taken in 1027 ft of Ellenberger, and may try to reach the Hickory sand. Nominal oil saturation at 5960-6046 ft failed to register on drill-stem test.

East Texas

Rusk County Discovery Makes Small Flow

Shallow discovery in Rusk County makes small flow. Chapel Hill adding trio deep wells. First Hawkins deep test drills through Paluxy without encouragement for production. Hopkins County Paluxy prospect sets oil string.

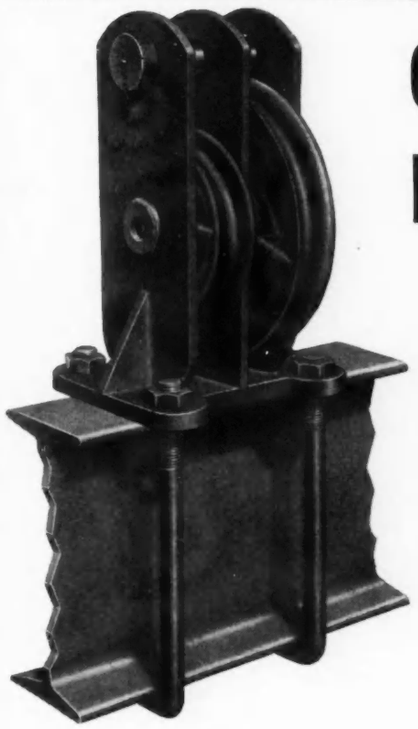
Rusk County. O. W. Killiam et al's Bass 1, 2½ miles north of New Salem and southwest of Pleasant Grove pool, flowing small volume of 34-gravity black oil with wash water from casing perforations 2910-65 ft in Nacatoch sand, topped 2880 ft, elevation 414 ft. Well makes mostly gas when throttled to ½-inch choke. Production possibilities of this zone indicated by blowout in drilling to Woodbine, which proved dry at 4256-4372 ft. In Pleasant Grove area, M. D. Bryant et al's Ashby 1, 1200 ft northwest of discovery, flowed 165 bbls fluid, 20 percent salt water, on 11-hour gauge 3/16-in choke, Woodbine perforations 4053-58 ft.

Hawkins Deep: Roger Lacy and Price's Maberry 3, first test within Woodbine producing area to drill to Upper Trinity, halted at 6535 ft in shaley-sand to run electrical log, no shows reported in Paluxy topped at 6110 ft, elevation 320 ft.

Chapel Hill: Trio of completions under way from Pettit, includes oilers by Sun Oil Co. and initial test by Sinclair Prairie Oil Co. Latter's Carithers 1, west offset to gas-distillate producer on west edge field, perforating opposite 3 porous zones between 8124-8315 ft in Pettit, topped at 8112 ft, elevation 503 ft, having drilled to dry Travis Peak at 8351-64 ft. Sun's Rayford 1, Jas. Holden Survey, flowed 127 bbls oil 24 hours ¼-in choke, acidized perforations 8322-40 ft, total depth 8418 ft, and Butler 1, Phillip Lively Survey, flowed 144 bbls oil 7½ hours ¼-inch, used 4000 gallons acid through perforations 8275-92 ft.

Paluxy Prospect: W. B. Hinton and Talco Asphalt & Refining Co.'s Long-Sun 1, Hopkins County wildcat on the Mexia-Talco fault trend, cemented 5½-inch on bottom at 4895 ft to perforate at 4740-48 ft opposite promising oil saturation in Paluxy, topped 4741 ft, elevation 518 ft. Formation tester used early in month at 4699-4757 ft yielded oil-cut mud.

Wildcats: H. L. Hunt is starting two more Woodbine projects, including Weakley 1 in northwest portion of 310-acre tract, C. C. Sealey Survey, near Jewett, Leon County. The Tide Water-Seaboard Oil Co. partnership assigned a portion of block on LaFayette geophysical prospect, northeastern Upshur County, to Hunt for test in northwest corner L. C. McCain 123.7-acre tract, M. H. Minor Survey. The Emory area, Rains County, is assured new operation with Tex Harvey Oil Co. rigging up to drill near center of B. R. Hall 117-acre tract, Bede Johnson Survey, 2½ miles northwest of Emory.



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TULSA, OKLAHOMA

Southwest Texas

North LaWard Field Defined On 3 Sides

North LaWard, Marginulina field, Jackson County, received setbacks with abandonment of northeast outpost and finding of salt water in tests to southeast and southwest. Now it appears there is a shorter oil column on flank of the field, bringing the gas-water contact closer to each other.

Lower Gulf Coast: E. M. Jones' Olsovsky 1, blk 1, 4250 ft ne N. LaWard fld, Jackson County, crd g sd 5211-17 ft, shaley sd & sh below 5234 ft, abnd 5350 ft.

Moore & Ahern's Badet 1, 6000 ft se strike of N. LaWard fld, perf 5218-36 ft, f o & sw, sw & reperf, testing, 18 ft lower on sd than disc.

Salt Dome & Gulfboard's M. C. Dickey 1, blk 1, 4500 ft sw N. LaWard fld, perf 5216-24 ft f o & g, sq, reperf 5216-20 ft, again f o & g, sq to reperf.

H. R. Smith & H. J. Mosser's B. H. Mueller 1, Wade City, Jim Wells County, crd g sd 3283-3302 ft, dr to 5100 ft, set 5½-in cas 3330 ft, perf & f g spray kerosene, si for separator, SIP 1400 lbs. New sd in Frio.

W. B. Osborn & Mid-Continent Pet. Co.'s Grove 1, 3100 ft s disc Banquette fld, Nueces County, perf 6978-83 ft w/12 f g & dist, 2400 lbs SIP, new sd.

Chicago Corp.'s Wardner 19, Stratton, Nueces County, perf 6423-33 ft, f 229.21 bpd 40.3-gr plo, ⅛ ch, 1160 lbs tp, 1120 lbs cp, gor 650-1. Opens crude prod w flank fld.

LaGloria Operators Committee, Inc.'s South Unit 1, 1 mi s LaGloria fld and first well in second unit, completing as dual sd prod above 6900 ft.

Wilcox Trend: Shell's Neuhaus 1, Ragsdale sur, 3 mi s Vienna fld, Lavaca County, perf abt 10,050 ft, testing. On dst well f blk oil fr same zone in Wilcox. Would open fld.

Chittim Anticline: Humble & Wellington's Indio Cattle Co. 2, Antonio Rivas gr, 22 mi se Eagle Pass, Maverick County, top Ed li abt 5764 ft, perf 5871-5900 ft, ran elec log and dst. Would open new fld.

Wellington Oil Co.'s Chittim 2, 2718 ft e Chittim fld, woc on 5½-in cas at 5711 ft, porosity w/dist o 5641-61 ft.

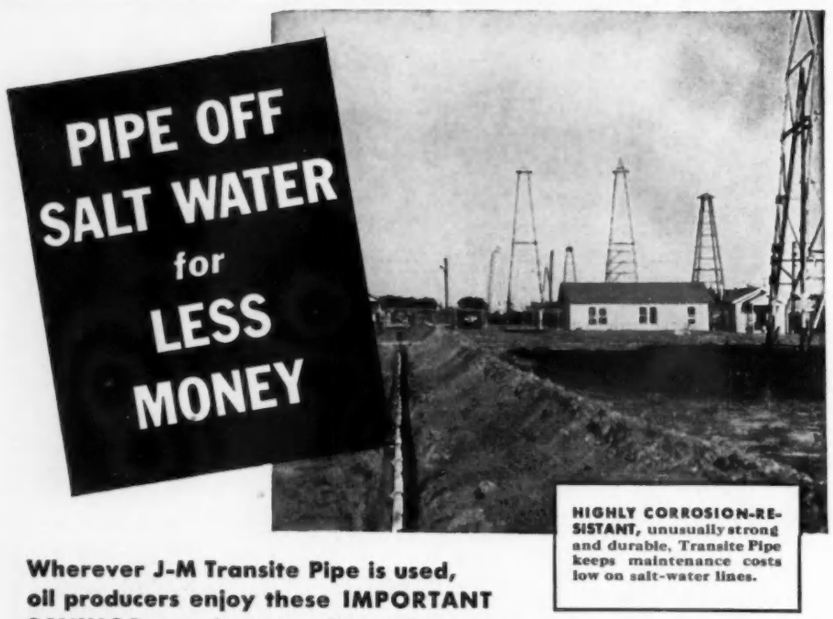
Laredo District: Forest Dev. Co.'s Hoogterp 1, sec 1110, 2 mi nw Mirando City, Webb County, pb fr 1906 ft to 1520 ft, set 5½ 1495 ft, testing sdy sec, oo, 1493-1511 ft. Would open fld.

Argo Oil Corp.'s Edrington 3-I, ne side S. Campana fld, McMullen County, testing Government Wells oil show below 2500 ft. Would open new sd.

Transwestern Oil Co.'s McDowell 1, ½ mi sw prod S. Campana fld, f plo fr perf 3075-80 ft ⅛ ch, 200 lbs tp, 700 lbs cp. Extends fld.

Rio Grande Valley: Sun Oil Co.'s Chapotal 1-A, 1416 ft n outpost Yturria fld, Starr County, dr below 4500 ft, crd sw sd 4337-57 ft.

Sun Oil Co.'s Jones 1, 30 mi ne Rio Grande City, but in Jim Hogg County, testing sd 4211-18 ft, would open pool.



HIGHLY CORROSION-RESISTANT, unusually strong and durable, Transite Pipe keeps maintenance costs low on salt-water lines.

Wherever J-M Transite Pipe is used, oil producers enjoy these IMPORTANT SAVINGS on salt-water disposal systems:

FAST INSTALLATION . . . Unusually light in weight, Transite Pipe is easy to handle and carry to the job. Long, 13-foot sections reduce the number of joints in the line. Assembly is so simple that even unskilled crews can finish jobs in the shortest possible time at lowest cost.

JOINTS STAY TIGHT . . . Simplex Couplings are unusually flexible . . . stay tight throughout the system's long life. Because leakage is minimized, there's little or no danger of your salt-water lines damaging crops or polluting ground water.

LOW MAINTENANCE . . . Made of asbestos and cement, Transite Pipe offers unusual resistance to corrosive action of salt water inside, acid soil outside. It can't rust, rot or decay . . . gives long service under severe conditions. And when lines must be relocated, Transite has high salvage value.

ON LEAD LINES as well as salt-water systems, Transite is giving better, lower cost service. For details, write for brochure DS-320. Johns-Manville, 22 East 40th St., New York, N. Y.

BECAUSE of its light weight, small trucks can carry large loads of Transite Pipe to location . . . handling and installation costs are reduced.

JM Johns-Manville
TRANSITE PRESSURE PIPE
For Salt Water Disposal Systems and Lead Lines

Texas Gulf Coast

Wilcox Wildcats Staked Lovelady Well Shows

New wildcats staked on Gulf Coast, several on Wilcox trend; Atlantic Refining Company testing Wilcox well in Montgomery County. Houston County well shows for production.

Wildcats: Placid Oil Co. staked Moore 1, Magnolia farmout, 2 miles northwest Rosenberg, Fort Bend County, spotted on 80-ac lease Henry Scott sur. Location near Magnolia's Huntington 1 which flowed gas and distillate from 8248-54 ft and 8179-84 ft before abandonment.

Republic Production Co. and Houston Oil Co. starting work on Republic-Houston-Cushing Fee 1, 1¼ mi southwest Joe's Lake field, Tyler County. Contract 7700 ft, Wilcox test.

Cockburn Oil Corporation's A. & M. College 1, 3 mi southwest Bleakwood, Newton County, is deep Wilcox test. Area has been worked extensively with geophysics, several companies holding acreage.

Montgomery County: Glenn H. McCarthy spotted 2 wildcats Magnolia area, Montgomery County. South Texas Development Co. 1 located center of north 400 acres L. Long 521-ac sur, ab 336, 3⅓ mi southwesterly Magnolia field. Operator bought 976 acres in lease from South Texas Development and 393 acres in 7 different tracts. Well projected on subsurface and trend play. McCarthy's

H. T. Tucker 1 is 1¼ mi southwest of Seyle 1, Magnolia discovery. Rig being moved to location. Both Wilcox wells.

Fostoria Wilcox: Atlantic's Foster 1, Fostoria area, Montgomery County, flowed salt water perforations 10,508-020 ft in Wilcox. New tests due to be made.

Shallow Wilcox: E. A. Gillespie's G. T. Lundy 1, Lovelady area, Houston County, logged 10 ft saturated sand 3212-24 ft, electrical log run. Sidewall samples recovered fine gray sand with good oil cut and oil odor. Preparing to run casing. New field opener.

Texas Drilling Takes Upswing

Drilling activity in Texas last week took a sudden turn upward with 339 permits approved by the Railroad Commission, 175 more than were authorized the week before.

Southwest Texas led with 104 permits, including 36 in Jackson and 14 in Nueces County, while operators in the Gulf Coast reported 28 locations.

Five permits were granted in the East Texas field with one each in Gregg and Rusk counties and three in Smith County. East Central Texas operators were allowed to drill 29 additional wells, including 12 in Wood County.

There were 66 locations approved in West Texas, including 18 in Cochran and 16 in Hockley County, and West Central Texas reported 33 permits.

The commission authorized permits for 50 wells in North Texas, including 15 in Wichita and 11 in Clay County, and 24 were allowed in the Panhandle, 12 of which were in Gray and 10 in Hutchinson County.

Louisiana Gulf Coast

South Gueydan Extended; Avery Island Well Quit

South Gueydan field extended westward; Phillips Petroleum Co. completes extension at Erath; Avery Island dome wildcat abandoned.

Vermilion Parish: Phillips Petroleum Co.'s Burt 1, west side Erath field, completed for 8 barrels 56.8-gravity distillate in 2 hours through 10/64-in choke, tubing pressure 3625 pounds. Total depth 11,688 ft, casing set 11,172 ft and perforated 10,457-462 ft.

Pure Oil Co.'s Alliance 10 extended South Gueydan westward, flowing 11 barrels oil per hour through 8/64-in choke; perforations 9860-80 ft; tubing pressure 1500 pounds, casing 450.

Iberia Parish: Gulf's Petit Anse 1, wildcat on southeast flank Avery Island, abandoned 11,237 ft. Second attempt to open on the big salt plug, first deep test being Petit Anse 1, drilled to 12,063 ft.

LaFourche Parish: Texas Co.'s LaFourche Basin Levee 1-A, wildcat in Bay DeChene area, opened gas reserve with perforations at 2500 ft making large volume.

North Louisiana

Catahoula Wildcat Has Oil Show in Sparta

Test in Wilcox trend shows oil in Sparta; four wildcat locations staked in as many parishes in Olla trend; south flank test at Haynesville tries for production in 4800-ft level.

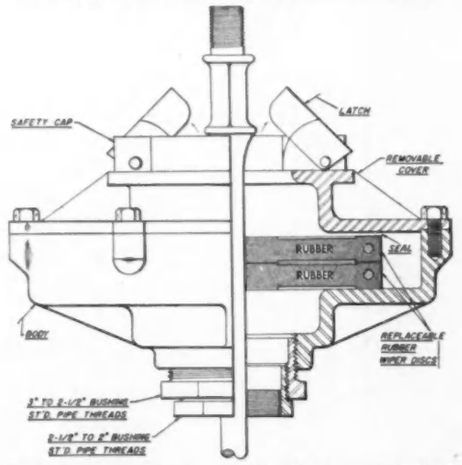
Oil in Sparta: Carter Oil Co.'s Tensas Delta G-1, NE SW 30-6n-5e, Catahoula Parish wildcat swabs oil and some water at 2564-70 ft in Sparta and testing continues; several tests drilled in Olla Wilcox trend have previously shown producing possibilities in this horizon but so far no commercial wells.

Wildcat Locations: Four new wildcat locations in as many parishes staked in Olla trend as widespread exploration of this horizon continues. Two by Carter Oil Co. and other two by Carter and Phillips Petroleum Co.

Haynesville: T. L. James' Akin 1, NW NE 27-23n-8w, Claiborne Parish, south flank test at Haynesville, which normally produces from 2800-ft Blossom sand, drilled to 5801 ft and plugged back for test at 4824 ft where some saturation logged. Identified as upper Glen Rose. In same parish, H. L. Hunt's Mitchiner 1, SW SE 15-23n-7w, drilled below 8950 ft and in north Lisbon, same parish, Union Producing Co.'s second test for Smackover lime 10,000 ft production, McDonald 1, C SE 13-21n-5w, drilled at 10,305 ft.

A Double Seal Wiper

Strips Sucker Rods Cleanly



Wiping is done by two freely floating, self-aligning, reinforced discs of tough, wear-resisting rubber. All sizes of rods wiped from ⅜" to 1⅛". Pump can be pulled through without injury. Keeps rods clean. The crew can work faster.

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Arkansas

Macedonia and McKamie Report Drilling Activity

Four new locations staked at Macedonia, Columbia County, as fifth producer completed; two new wells at McKamie, LaFayette County, giving field 14 producers; twelfth producer completed at Village, Columbia County, a field inactive for several months.

Macedonia: The fifth producer was completed in Macedonia field, Columbia County, and four new locations staked, with two others tentatively staked. Three tests drilling in field.

McKamie: Two new producers were completed in the McKamie, Smackover lime field, LaFayette County, both in east part of field, and fifteenth producer looms. Both new wells operations of Atlantic Refining Co.

Village: After several months' inactivity, Village field, Columbia County, south edge producer, completed at E. G. Bradham's Threadgill 1, Section 15-18-19, total depth 7426 ft, flowing 60 bbls day on small choke awaiting tankage. Top Smackover lime, 7380 ft, top porosity, 7407 ft, logged 16 ft porosity.

Mississippi

Set to Test Show in Madison County Wildcat

C. L. Morgan cemented seven-inch casing at 4918 feet to test an oil showing at 4820-38 ft where in drill-stem test Whitworth 1, SW 4-11n-3e, Madison County wildcat, showed 135 feet of 41-gravity oil and 240 ft of oil-cut mud. Location is two miles southeast small Pickens field, Yazoo County.

Magnolia Petroleum Company's Hall 1, NW SE 39-17-4e, Warren County wildcat which showed 16-gravity oil in the Wilcox at the 2300-ft level, drilled below 3809 ft.

Michigan

Two New Pools In Prospect

Big drilling campaign started for shallow gas production. Tests on Bay County wildcat disappointing.

Wildcats: H. J. Hirzel et al's Oxendale, SE NE SE 36-18n-5w, Clare County, on Lake George-Clare City trend, logged Dundee at 3933 ft, bottomed 3941 ft with 160 bbls 43-gravity oil first 48 hours. Production developed before 5½-in had been set. After third day well was heading 245 bbls day with open hole from 1685 ft, believed caving. Test is located just west old 1500 ft Stray sand (McKay-Mercier) pool with control wells drilled earlier practically flat with discovery.

Smith Petroleum Co.'s Partlo 1, C E½ NE SW 28-14n-8e, Tuscola County, three miles southeast old Wisner pool, flowing 45 to 65 bbls oil day from 2867 ft. Dundee top reported at 2638 ft. Indicates first important Dundee production for county. Wisner pool drilled chiefly for 3450 ft Monroe lime oil.

Clapsaddle & Harris' Malstrom 1, NW SW NW 19-1n-15w, Allegan County, pumping and flowing 20 to 30 bbls oil day for Traverse lime discovery at 1170½ ft in Lee township.

Major & Roush deepened McDonald 1, wildcat, SW SE SW 2-18n-3e, Bay County, from 4145 ft, first Monroe oil saturation point, where 5½-in was set and cemented, to 4299 ft without logging likely looking pay. Three small saturation zones tested before logging water show at 4270 ft. Attempt may be made to acidize.

Roscommon County: Sun Oil Co.'s Hunt 1, W½ NW NW 29-23n-4w, logged Traverse lime 2495 ft and Dundee 3245 ft with hole carrying 12 bailers water in 8 hours 3303-3333 ft.

Sun's Bauman 1, SW NE 29-24n-1w, Richfield Township, Roscommon County, re-casing 5½-in at 4160 ft, after reaming from 2116 ft, to test Monroe lime pay logged through hole full upper formation water. Well has flowed about 300 bbls oil through water in six weeks.

Gas Development: Taggart Brothers Co. started two rotary rigs on 4-a-week completion program in semi-developed gas fields in Winterfield Township, Clare County, Marion Township, Osceola County, and Riverside Township, Missaukee County. Company controls entire proven areas through over-ride farm out program. Production is from Michigan Stray ranging 1200 to 1600 ft.

California

New Tests Starting in Fresno, Kern and Ventura

Stake second well in new Fresno County area; two new Kern County tests slated as a third abandoned; Los Angeles County test abandoned; first test on large Ventura County acreage staked.

Fresno County: Amerada Petroleum Corp. has located a second test in the Helm area of Fresno County, a half-mile north of its recently completed No. 31-34 Clover discovery well.

Kern County: Richfield Oil Corp. abandoned Kraemer 1, Sec. 34-28-27, Kern Front area, after coring to 7738 ft in gray shale and siltstone. No showings were found in Vedder topped at 6205 ft or Eocene topped at 7160 ft. Entered granite at 7720 ft.

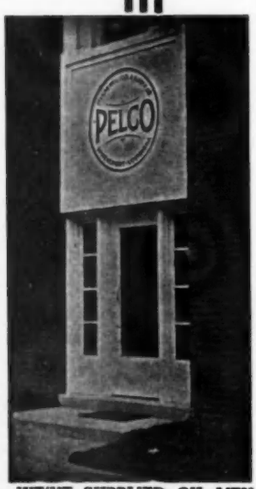
Location has been staked by Shell Oil Co. for a test in Sec. 12-30-25, as a northerly outpost try in the Strand field. Continental Oil Co. is also preparing to drill a second test in the Shafter-Semitropic area, the new location to be to the east of its KCL No. C-2 discovery well and in Sec. 36-27-24.

Los Angeles County: Sunset Oil Co. is abandoning Baldwin 1 test in the Puente Hills area which tested wet at intervals between 3700 and 4490 ft. Bottom was at 1681 ft.

Ventura County: In the 28-section Santa Paula y Saticoy lease of Shell Oil Co. location has been staked for the first test in Sec. 21-3-21. Company has completed geological exploration work started early this year.

We're Not That Good

We have it on excellent authority that there are people running around loose in this wicked old world who would have you believe they know all about priority regulations. We're not that good. We can't pretend to understand regulations the regulators don't understand themselves. But in 33 years we have had a bit of experience with emergency situations, and we believe one way to surmount difficulties it to keep your mouth shut and work like hell. Hence the smoke.



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Berwick
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UNITED STATES WELL COMPLETIONS

Company, Well and Location — Init. Prod. Bbls. — Depth

Arkansas

Columbia County (Macedonia)—
General Crude Oil Co., Franks 1, 21-18-21 ..... 400 8922
Columbia County (Village)—
E. G. Bradham, Threadgill 1, 15-18-19 ..... 60 7426
LaFayette County (McKamie)—
Atlantic, Bodcaw Lbr. Co. 7, 33-17-23 ..... 480 9306
Bodcaw Lbr. Co. 8, 32-17-23 .... 502 9340

California

Fresno County (Kettleman Hills)—
KNDA, No. 83-28Q..... 993 7765
Kern County (Belridge)—
Belridge Oil Co., No. 61-26..... 495 8400
Kern County (Buena Vista)—
Standard, No. 9-11D..... 36 2710
Kern County (Devils Den)—
Raymond D. Herzog, Marine 29.... 7 220
Kern County (Greeley)—
Standard, KCL 11-29.....3040 11510
Kern County (Kern Front)—
General, Young 6..... 96 2125
Kern County (Kern River)—
Riokern Oil Co., No. 3..... .. 500
Kern County (Mountain View)—
Texas, Jewett 1..... 745 6380
Kern County (Rio Bravo)—
Superior, Pasadena Realty 6.....1620 11470
Kern County (Ten Sections)—
Shell, KCL A-66-30..... 974 8210
Los Angeles County (Long Beach)—
Union, Oil Operators 2..... 88 5480
Los Angeles County (Seal Beach)—
Hellman Estate Co., No. 12.....1040 5618
Los Angeles County (Wilmington)—
Atlantic, Water & Power 4..... 125 3610
Barnhart Morrow Cons., No. 2-A.. 175 3704
Lee S. Davis, Davis 1..... 173 3705
Long Beach Oil Dev. Co., Y-13-X.. 205 3970
A. D. Mitchell, Nelson 1..... 70 3742
Petromont Oil Co., Wilmington 3.. 174 3730
Orange County (Huntington Beach)—
Signal O. & G. Co., Signal-Bolsa 31-A 485 3199

*Failures; †Junked; ‡Million cu. ft. gas.

Santa Barbara County (Santa Maria Valley)—
O. C. Field, Brown 1..... 500 5500
Lomi Oil Co., Fairfield 1..... 400 5250
Union, Stinson 5.....1240 5243
Sutter County (Rio Visto Gas)—
Amerada, Robinson 1..... * 6815
Ventura County (Ventura Avenue)—
Shell, Taylor 144.....2300 8300

Colorado

Huerfano County (Alamo)—
S. W. Pressy, Alamo 3, se sw nw 10-27s-68w ..... * 1522

Illinois

Bond County—
Magnolia, Grigg 7, ne nw sw 3-6n-2w ..... * 1049
Clay County—
Pure, Easley "A" 1, se ne se 19-3n-8e 6 2740
Rockhill, Stanford "A" 1-A, nw sw nw 29-3n-8e ..... * 3155
Gulf, Reed 2, sw ne se 26-4n-7e... 98 2335
Walsh-Drye Drlg., Rudolphi 1, ne ne se 1-4n-8e ..... * 3135
Sistler & Strawser, Phoenix 2, sw nw sw 14-1n-1w 85 1445
Edwards County—
Seaboard Oil Co., Nelson 1, e½ se sw 32-1n-14w ..... * 3240
Fayette County—
Oils, Inc., Wood 3-D, c e½ se se 16-8n-3e 200 3131
Carter Oil, Durbin 3-D, c ne ne 28-8n-3e 176 3037
Phillips-Wood 36-7, ne c sw sw 36-9n-3e .....Input 1558
Franklin County—
Eason Oil Co., U. S. Fuel 1, ne nw se 25-5s-4e ..... * 3347
Armstrong-Day, Kimball-Wayman 1, nw nw sw 1-6s-2e 16 2626
Homer Lutrell, Kasper 1, se ne ne 2-6s-2e ..... * 2604
Adkins Coal Co., Orient "CM" 3, nw sw nw 24-6s-2e 160 2134
Shell, McKemie "B" 4, nw sw nw 30-6s-3e 168 2158

Hamilton County—
Texas Co., Poorman "B" 2, se ne se 24-3s-7e ..... * 3451
Knight 2, sw nw ne 13-6s-5e.... 154 3325
Hicks Russell Comm. 1, w½ nw se 27-6s-6e 700 3095
Ohio Oil, Aydt 1, se nw se 3-4s-5e * 3596
Shell, Ventress 2, sw se sw 12-6s-5e 264 3411
Anderson 2, nw ne nw 13-6s-5e.. 300 3350
Nahova 1, nw sw ne 13-6s-5e.... 430 3328
Cox 1, se nw ne 14-6s-5e..... 288 3444
Schoenfelt et al, Hamilton 2, sw nw se 13-6s-5e 506 3310
Magnolia, Sloan 4, sw se nw 13-6s-5e 1362 3386
Gulf, Morlan 1, ne nw se 14-6s-5e.. 30 3153
Shisenant & Trenchard, Lockwood 2, sw sw ne 23-6s-5e 64 3124
Lockwood 1, nw sw ne 23-6s-5e.. 34 3115
Cameron Co., Lockwood 5, nw ne nw 23-6s-5e 179 3120
Lockwood "A" 2, sw nw ne 23-6s-5e 85 3117
Carter Oil, Hale 1, ne ne se 1-6s-6e 241 3018
Hale 2, c se ne se 1-6s-6e..... * 3217
Pure, Cuppy 21, ne sw sw 6-6s-7e.. 26 3001
Cuppy 23, c sw sw sw 7-6s-7e.... 30 3013
Cuppy 24, se ne nw 7-6s-7e..... 104 2723
Jasper County—
Joe Carroll, Ross 2, sw sw ne 8-6n-10e 145 2847
Texas, Benskin 1, se nw se 5-6n-10e 100 2808
Lourdon 3, se ne nw 8-6n-10e.... 200 2818
Pure, Eckl 3, sw se ne 8-6n-10e.... 117 2835
Houser 1, e½ nw se 33-6n-10e .. 452 2835
Jefferson County—
Carter Oil, Sanders 3-D, c se se 4-1s-2e ..... * 3735
Gulf, Eubanks 1-A, ne se sw 35-2s-1e 70 1937
Howe 1, sw nw nw 36-2s-1e.... * 2300
Comm. Blankenship 1, nw nw sw 1-3s-1e 210 1944
First Nat'l Pet., Hall 1, sw ne sw 36-2s-1e 195 1983
Hall 2, nw ne sw 36-2s-1e 105 1993
W. C. McBride, McMillen 1, nw nw sw 36-2s-1e 29 2005
N. V. Duncan, Hall 2-A, nw se nw 36-2s-1e ..... * 2021
Rezick, Gen. Amer. Life 1, se sw nw 30-2s-6e ..... * 3431
Madison County—
Fred C. Kiskadden, Fisher 1, se sw ne 27-5n-8w ..... * 1960

[*Continued on Next Page*]

Summary of Drilling Operations in the United States, Week Ended November 22, 1941

	WELLS COMPLETED								[1]PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	[3]Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	.....	.....	.....	....	....	.....	5	9	....	.....	.....	.....	.....
Arkansas	4	4	....	....	....	1,442	175	166	2	14	171	138	153
California	24	23	....	1	....	14,981	1,066	1,004	14	61	1,061	1,012	1,042
Colorado	1	.....	....	1	....	.....	18	8	....	.....	.....	.....	.....
Florida	.....	.....	....	....	....	.....	1	2	....	.....	.....	.....	.....
Georgia	.....	.....	....	....	....	.....	1	.....	....	.....	.....	.....	.....
Illinois	92	67	....	22	3	18,326	3,620	3,630	93	291	4,333	4,154	4,532
Indiana	9	4	2	3	....	290	492	473	12	37	[2]266	.....	.....
Iowa	.....	.....	....	....	....	.....	6	1	....	.....	.....	.....	.....
Kansas	46	30	2	11	3	29,557	2,028	1,823	53	128	2,125	1,858	2,048
Kentucky	15	7	1	7	....	188	304	338	9	25	[2]182	.....	.....
Louisiana	24	15	....	9	....	3,054	1,403	1,557	21	79	1,571	1,526	1,658
Michigan	30	19	5	6	....	15,900	778	1,115	34	87	877	1,010	1,093
Mississippi	.....	.....	....	....	....	.....	191	173	....	.....	.....	.....	.....
[1]Missouri	.....	.....	....	....	....	.....	64	30	....	.....	9	25	26
Montana	9	2	5	2	....	395	209	173	....	.....	.....	.....	.....
[1]Nebraska	.....	.....	....	....	....	.....	84	36	....	3	91	59	69
New Mexico	8	7	....	1	....	1,467	357	586	....	17	367	520	559
New York	35	17	....	....	18	131	948	896	....	.....	.....	.....	.....
Ohio	42	16	16	10	....	168	1,606	985	....	.....	.....	.....	.....
Oklahoma	23	11	3	7	2	2,119	1,954	1,940	37	133	2,123	1,697	1,888
Pennsylvania	62	41	2	2	17	52	3,375	3,131	....	.....	.....	.....	.....
South Dakota	.....	.....	....	....	....	.....	.....	1	....	.....	.....	.....	.....
Tennessee	.....	.....	....	....	....	.....	16	11	....	.....	.....	.....	.....
Texas	202	151	8	38	5	66,384	9,423	8,992	339	649	10,966	10,039	11,170
Utah	.....	.....	....	....	....	.....	3	3	....	.....	.....	.....	.....
West Virginia	.....	.....	....	....	....	.....	671	556	....	.....	163	722	782
Wyoming	5	4	....	1	....	361	123	138	....	.....	.....	1	1
Total this week	631	418	44	121	48	154,815	28,921	27,777	614	1,524	24,305	22,762	25,021
Total last week	598	352	67	136	43	123,356	28,290	27,244	462	910	23,691	22,354	25,021
Total this year	28,921	17,648	2,279	6,327	2,667	7,977,619	.....	.....	....	.....	.....	.....	.....

[1] This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
[2] No data available before June 14, 1941.
[3] Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

ILLINOIS—Continued

Marion County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, Hedley 1, se sw ne 34-4n-1e	Dsp.	1151
Highlands Oil Co., Thalman Est. 6, se sw nw 36-4n-1e	30	1362

Wabash County—

First Nat'l Pet., Crandall 1, ne nw nw 21-1s-12w	180	1990
Joe Young, Alka 7, se nw ne 1-1n-12w	*	2043
White & Wickwire, Price 1, w½ ne sw 14-1n-12w	50	1619
L. B. Jackson, Freeman 4, nw se ne 36-2n-12w	15	1961
Alford Pet. Co., Gutteredge 1, nw ne nw 29-3n-12w	140	1908

Wayne County—

Bell Bros., Fuhrer 1, w½ ne nw 33-1s-6e	240	3205
Gulf, Berger 1, sw se nw 1-2s-7e	108	3333
Watkins & Weinert, Ferguson 3, n½ sw nw 1-2s-7e	235	3326
Texas, Wilson-Reutters 1, s½ se ne 22-1n-6e	175	3212
Watson-Wells Comm. 1, n½ sw se 26-1n-6e	1104	3160
Sweeney 2, s½ ne se 34-1n-6e	100	3177
Shell, Williams 1, s½ sw sw 22-1n-6e	1244	3200
Wilson 4, e½ se se 33-1n-6e	931	3222
Ohio, Taylor 1, s½ nw sw 23-1n-6e	1701	3183
United Prod. Co., Hale "A" 1, s½ nw sw 22-1n-6e	1400	3253
Hilliard 7, w½ sw se 23-1n-6e	576	3215
Hilliard 5, s½ nw ne 26-1n-6e	350	3191
Scholfield 2, n½ sw sw 35-1n-6e	*	3190
Wiser Oil Co., Hale 2, se ne sw 33-1n-6e	300	3273
States 1-A, w½ ne sw 36-1n-6e	257	3261
Olson Drlg. Co., Cisne State Bank 1, e½ nw ne 36-1n-6e	220	3328
Pure, Barth "C" 1, e½ ne se 2-1n-7e	102	3081
Sun, Winters 1, e½ se nw 31-1n-7e	*	3239

White County—

W. W. Gray, Fee "A" 17, se nw nw 14-3s-14w	80	2541
First Nat'l Pet., Reeves Heirs 3, se nw sw 20-3s-14w	46	2318
Texas Co., Poorman "B" 12, nw nw sw 19-3s-8e	*	3259
Poorman "B" 13, sw nw sw 19-3s-8e	*	3268
Bay Petroleum, Hatcher et al 1, sw se ne 22-3s-10e	*	3264
Tide Water, Evans 8, s½ sw nw 4-4s-14w	92	2815
Superior, Given 19, sw ne sw 34-4s-14w	70	2835
Given 17, ne sw sw 34-4s-14w	170	2845
Skelly Oil, Winter 1, nw nw sw 18-4s-10e (pb 3045)	16	3317
National Petroleum, McQueen 1, ne ne sw 34-5s-10e	128	2108
Cherry, Kidd et al, Karch 7, se nw se 13-6s-10e	195	2030
Jarvis Bros. et al, Ackerman 1, ne ne sw 34-6s-10e	*	3095
Kingwood-Sinclair, McKinzie 4, ne nw sw 12-7s-8e	30	3091
Porter 3, sw nw se 12-7s-8e	*	3008
Carter Oil, Hamilton 6, nw ne ne 11-7s-8e	182	2219
Hiawatha O&G Co., Stinson 7, sw sw sw 17-7s-11e	80	2466

OLD WELL DEEPENED

Hamilton County—

Shell, Lockwood 1, sw nw nw 13-6s-5e (otd 3200)	450	3274

Indiana

Daviess County—

R. D. Brown, Inc., Brown 1, c n½ sw ne 21-2n-6w	¶550	741

Gibson County—

Princeton Mining Co., Smith 1, s½ ne se 21-1s-12w	60	1988
Fields & Woodruff, Garrett-Hall 2, se nw sw 31-2s-12w	*	1112

Jasper County—

National Petro., Wortley 1, c sw sw 19-29n-6w	*	959

Posey County—

K. R. Bixby, Tr., Luigs 4, sw sw se 14-5s-12w	20	1205
Cherry, Kidd et al, Sanderson 1, ne ne ne 7-7s-14w	*	2951
Haines, Thomas et al, Schearer 1, ne ne nw 13-7s-13w	110	1951

Ripley County—

Oscar Hughes, Fee 1, nw nw sw 4-8n-10e	¶75	901

Spencer County—

Benoist, Tr., Abbott 2, sw ne nw 7-7s-7w	100	1039

Kansas

Barton County—

Hill H. Blair, Peirano 2, c n½ nw ne 4-16s-11w	141	3079
Skelly, Esfield 6, c e½ sw ne 30-16s-11w	278	3274
Rinkle et al, Depiesse 1, c s½ sw se 5-16s-12w	*	3393
Lario, Weber "B" 1, c s½ sw se 11-16s-12w	*	3378
Continental, Redetzke 1, se sw sw 20-16s-13w	231	3399
Stanolind, Morrison "A" 5, c w½ e½ sw 27-16s-13w	3000	3415
Black-Marshall, Schneweiss "B" 1, sw sw nw 5-17s-11w	1100	3365
Shell, Sibler 1, se se se 16-17s-11w	2743	3264
Virginia Drlg., Hertner "A" 1, c s½ se ne 17-20s-11w	879	3311

Butler County—

Cromwell & Lewis, Clark 2, nw ne ne 3-28s-5e	40	3119

Cowley County—

Tulsa Oil, Moore 1, se ne ne 15-32s-5e	102	3117

Ellis County—

Dickey Oil, Carmichael "D" 2, c n½ sw sw 8-11s-17w	623	3382
Cities Service, McCord 11, sw se ne 26-11s-17w (pb 3598)	3000	3642
Falcon-Seaboard, Wasinger 1, ne ne se 20-11s-18w	*	3538
Imo Oil & Gas, Gunther 1, c s½ sw se 35-11s-18w	311	3588
Central, Derby & Crow, Long 1, c n½ ne nw 20-13s-16w	*	3585

Ellsworth County—

Cities Service, Schroeder "C" 1, c n½ ne nw 34-16s-10w	292	3307
Continental, Fuller 9, sw sw se 28-17s-8w	516	3219
Dedrickson et al, Siemson 2, c s½ ne nw 2-17s-10w	376	3302

Greenwood County—

Henderson Oil, Schneider 6, sw nw sw 9-23s-13e	*	2365
Derby & Burdil, Davis 2, ne sw ne 8-23s-11e	7	1299

Jefferson County—

McLaughlin, Knutson 1, sw sw nw 33-9s-20e	¶6	1426
E. V. Jackson, McLoed 1, c nw se 5-10s-20e	¶7.7	1501

Marion County—

Veeder Supply, Jones 1, c n½ se nw 26-17s-4e	437	2400

Pawnee County—

Kessler & Hall, Belt "A" 1, c w p nw sw 13-20s-16w	*	3884

Phillips County—

Carter, Eltiste 1, c se ne 35-2s-19w (pb 3342)	426	3545
Cities Service, Ray "C" 1, ne ne ne 32-5s-20w	840	3582

Pratt County—

Skelly, North Maxedon 1, c s½ se sw 24-27s-11w (pb 3376)	*	3678
A. R. Jones et al, Eubank 1, c n½ ne nw 11-27s-14w	*	4715
Luther Mackall et al, Thornton 1, c e½ se nw 14-29s-13w	*	4777

Reno County—

Cities Service, Snowberger 1, sw sw nw 22-23s-10w	3000	3809

Rice County—

Continental et al, Warner "A" 4, ne se nw 36-18s-8w	3000	3224
McPherson Drlg., Cannon 2, sw nw se 8-19s-9w	957	3240
C. H. Weaver, Schroeder Est. 1, c s½ sw ne 18-19s-9w	*	3346
Sharon Drlg., Dittmers 1, c e½ ne sw 28-19s-10w	333	3240
Luther, Mackall et al, Mitchell 3, c w½ nw se 4-20s-9w	60	3243
Colorado Pet., Keesling "B" 3, c n½ s½ nw 10-20s-9w	45	3230

Russell County—

Jones & Shelbourne, Rein 4, c s½ se sw 27-14s-13w	697	3048
Stanolind, Zeaman 1, c n½ nw ne 9-15s-12w	958	3125
Helmerich & Payne, Sylvia 2, c s½ ne nw 20-15s-13w	501	3287

Stafford County—

Stanolind, Richardson 12, c n½ n½ nw 10-24s-11w	367	3797
F. C. Hall, O'Conner 1, c w½ ne nw 14-24s-12w	3000	3843
W. R. Jenner et al, Hastings 1, c e½ se nw 24-26s-13e	*	1522

OLD WELLS DEEPENED

Rooks County—

Plainstock et al, Westhusin 2, c w½ se se 11-9s-17w (otd 3258)	632	3319
Snowden & McSweeney, Booth 2, nw se sw 32-11s-15w (otd 2898)	5	3176

Stafford County—

Pure, Krey 2, nw nw se 14-24s-11w (otd 3823)	660	3844

Kentucky

Daviess County—

Barnett et al, Woods 1, 9-N-30	15	935
Snyder, Shively 3, 20-N-30	¶1250	1187
St. L. O. & Rfg., Logsdon 2, 2-P-27	*	1342
Fleming Douthitt, Able 2, 9-P-30	*	1456

Grayson County—

Reulis Oil Co., Davidson 1	*	342

Hancock County—

W. J. Flescher, Moorman 1 (3), 7-O-35	*	312
Henry Scholl, Parrott 2, 17-P-33	4	467

Henderson County—

Stewart & Snyder, Cosby 2, 8-O-25	8	707
Schneider et al, Overfield 7 (8), 25-O-25	4	656

McLean County—

J. C. Ellis, Stevens Heirs 8, 6-L-29	65	1634
Ohio Oil, Momanama 10, 4-M-28	87	1705

Muhlenberg County—

H. A. Henry, Lee 6, 13-H-28	5	800
O'Neill & Miller, Jameson 1, 13-H-28	*	1141

Ohio County—

W. A. Batten et al, Mason Hrs. 1, 19-N-34	*	267

Webster County—

Powell Bros., Eastwood 1, 21-N-24	*	1560

South Louisiana

Acadia Parish (Jennings)—

Shell, Conover-Community 18	162	7759
Stanolind, CO&M Co. 121	430	8000

Cameron Parish (Black Bayou)—

Shell, Watkins 48	*	8480

Cameron Parish (Cameron Meadows)—

Magnolia & Humble, Cameron Meadows 34	59	1348

Cameron Parish (Sweet Lake)—

Pure, Yount-Lee 25	179	7630

Evangeline Parish (Pine Prairie)—

Pan American, Guillory 2	300	8369

Evangeline Parish (Ville Platte)—

Continental, Ortego-Guillory Unit 1	*	10299
Adam Tatel, Tr 3	192	9972
Albert Tate 2-A	*	10282
J. G. Vidrine 1	256	10248

Iberville Parish (St. Gabriel)—

Titanic Oil, Natalbany 4-A	302	8688

Iberville Parish (Whitecastle)—

Shell, A. Wilberts 21	*	5092

LaFourche Parish (Golden Meadow)—

Berkshire Oil, Joe Nicol 16	21	6312

St. Martin Parish (West Lake Verrette)—

Shell, Breaux Lbr. Co. 8-A	146	2370
St. Martin Par. Sch. Ld. 3	50	3190

St. Martin Parish (Anse la Butte)—

DeBuse Oil	*	1450

St. Mary Parish (Bayou Sale)—

Atlantic, St. Martin Par. Sch. Ld. 1	474	11877
Humble, Luke 1	302	10768

St. Mary Parish (Charenton)—

Fifteen Oil Co., South Coast Corp. 1	*	9527
Pan American, Charenton-Community 1	105	1238

St. Mary Parish (Belle Isle)—

Sun, Belle Isle-State 3	*	600

West Baton Rouge Parish (West Port Allen)—

Amerada, Wilberts & Sons 4-A	76	9795

North Louisiana

Catahoula Parish (Wildcat)—

Carter, Highland Farms 1, 12-6n-4e	*	5835

LaSalle Parish (Wildcat)—

Carter, Tensas Delta I-1, 1-5n-4e	*	6472

Montana

Cascade County (Vaughn)—

Bushford Pet. Synd., Shannon-Roberts 1, c sw ne 12-20n-1e	*	3300

Fallon County (Cedar Creek)—

Mondakota Dev. Co., State 3, ne ne ne 36-5n-60e	¶¼	700

Hill County (Box Elder)—

Montana Dakota, Fee 1, nw nw nw 24-32n-17e	¶15	1270

Glacier County (Cut Bank)—

A. B. Cobb & Co., Tribal-206 1, nw nw sw 19-32n-5w	245	2962
Alberta-Pacific Cons., Keisel 6, cnl nw 11-34n-6w	150	2916
R. C. Tarrant, Larson 3, cel nw 7-34n-5w	¶½	2707

Liberty County (Whitlash)—

Western Nat. Gas Co., Hicks 3, c se ne 27-37n-4e	*	1950

Phillips County (Bowdoin)—

Montana Dakota, Kohnlein 3, C Lot 2, 30-32n-34e	¶½	1075

Toole County (Devon)—

Frank P. Walsh, Dempter 1-X, c ne sw 20-33n-2e	¶1	812

United States Well Completions—*Continued*

Michigan

Allegan County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Perry, Gould & Cross, Shafer 1, nw ne sw 18-3n-12w	140	1583
Shafer 2, ne ne sw 18-3n-12w	130	1600
Muskegon Dev. Co., Wamhoff 1, se ne nw 18-3n-12w	190	1558
Clapsaddle & Harris, Malstrom 1, nw sw nw 19-1n-15w	25	1170

Aernac County—

C. W. Teater, Collins 1, sw se se 15-19n-3e	100	2970
Pure, McTaggart A3, sw nw se 22-19n-3e	1200	2880

Bay County—

United Driller, Kircher 7, nw se ne 3-14n-4e	60	2900

Clare County—

Mogul Oil Co., Puls 1, c n½ nw nw 1-20n-3w	*	4300
Taggart Bros., Abbott 80, c se 28-20n-6w	¶1½	1380
Schuett 38, c sw 28-20n-6w	¶ ½	1362
Nearhood 37, c nw 33-20n-6w	¶ 6	1342

Isabella County—

Michigan Devonian, Davis 1, nw nw nw 3-14n-3w	1100	3058
L. & S. Drilling Co., Cox 1, se se se 18-14n-5w	¶ ¾	1290

Lake County—

Louis Rose, Skidmore 1, c s½ se se 15-18n-11w	*	3830
Pure, Morrison 1, c s½ se ne 25-18n-11w	50	3678

Midland County—

Fisher-McCall, Power Co. 1, c n½ nw sw 16-14n-2w	25	3568

Montcalm County—

Belvidere Oil Co., Pitts 1, sw ne sw 18-12n-7w	*	1287

Newaygo County—

E. B. Strom, Tr. Messner 1, sw sw ne 10-13n-14w	*	2860

Osceola County—

Taggart Bros., Yorhouse 1, c sw 27-19n-8w	*	1749
Loucks 24, c ne 20-18n-10w	¶9½	1175
Pure, Richards B2, c n½ se sw 19-18n-10w	1200	3602
Brock 2, c s½ sw sw 20-18n-10w	500	3600
Reber 2, c n½ ne nw 32-18n-10w	350	3594
Gordon & Bolger, Meida B1, c n½ ne se 20-18n-10w	7500	3548
Ohio, Fatum 3, c n½ se se 30-18n-10w	2000	3539
Gocha 1, c n½ sw nw 32-18n-10w	1200	3605

Ottawa County—

Lenoran Pet. Co., Rokus 1, nw sw sw 10-5n-15w	*	1578

Van Buren County—

A. S. Hoyt, Shugars 2, ne nw sw 21-2s-16w	100	1000
E. G. Hartman, Truax 1, sw nw ne 11-1s-14w	10	1282
R. D. Malcolm, Dvorak 1, nw nw ne 12-1s-14w	20	1274

New Mexico

Eddy County—

Geo. Etz Oil Co., State 7, sw se nw 16-17s-30e	25	2109
Paton Bros. et al, Magruder 2, sw ne se 35-17s-27e	40	500
Premier Oil Co., McIntyre 1-F, c ne se 17-17s-30e	22	2094
Sanders Bros. et al, Leonard 1, c nw sw 34-16s-30e	77	2982

Lea County (Maljamar)—

Drl. & Explo, Inc., Johns 1-A-24, c sw sw 24-17s-32e	215	4300
Maljamar O&G Corp., Mitchell 7-A, c se nw 20-17s-32e	800	4046
Mitchell 5-B, c ne sw 20-17s-32e	288	3822

Lea County (Wildcat)—

Culbertson & Irwin, Inc., Wingfield-Texaco 1	*	4634

New York

Allegany County—

Albert Oil Co., Swift farm, Bolivar	9	1277
B. & B Oil Co., Curtis farm, Genesee	11	1381
Pure Penn Pt. Corp., Mulkins farm, Bolivar	9	1433
Brothers Oil Co., Crandall farm, Bolivar	8	1370
Messer Oil Corp., Shaner farm, Bolivar	12	1467
C. H. Christman & Son, Middaugh farm, Scio	9	1362
The Otsquago Oil Corp., Pike farm Alma	8	1436
Dick Oil Corp., Bradley farm, Bolivar	9	1440
E. B. Sage et al, Conklin farm, Bolivar	7	1418
Almy & Pierce Oil Co., Owens farm, Bolivar	5	1386
Bohne Bros., Helmhold farm, Wellsville	5	1372
H. W. Patterson et al, Ockerman farm, Amity	5	747
Bliven Hill Oil Co., McEwen-Norton farm, Amity	5	889
Sloan & Zook, Schram farm, Bolivar	8	1371
New York Oil Co., Brown farm, Bolivar	7	1384
Otto Oil Co., Bartlett farm, Bolivar	6	1254
B. & S. Oil Co., Munger farm, Wirt.	8	1377

Water Intake Wells—

Vosburg Oil Co., Green farm, Bolivar	..	1274
Messer Oil Corp., Vosburg farm, Bolivar	..	1346
Vosburg farm, Bolivar	..	1365
South Bolivar Oil Co., McKelvey farm, Bolivar	..	1322
Producers Oil Corp., "A," Keller-Scott farm, Wirt	..	1052
Brothers Oil Co., Crandall farm, Bolivar	..	1366
Ebenezer Oil Co., Vincent farm, Scio	..	1075
Bradley Prod. Corp., Sprague farm, Alma	..	1269
The Otsquago Oil Corp., Pike farm, Alma	..	1433
Albert Oil Co., Coats farm, Scio	..	1059
Marsh Oil Co., Fay farm, Bolivar	..	1421
L. H. Thornton et al, Fassett farm, Willing	..	1156
Harold Gowdy et al, Frederick farm, Alma	..	1376
H. W. Patterson et al, Browning farm, Scio	..	641
Browning farm, Scio	..	661
Bliven Hill Oil Co., Rogers farm, Amity	..	846
Forest Hill Oil Co., Randolph farm, Wirt	..	1286
Deer Creek Oil Co., Hall farm, Genesee	..	1377

Ohio

Athens County—

Ross et al, Sapp 1	1½	375
H. B. Walker, Blackwood 1	*	1740
Choguill et al, Laughlin 1	*	980
Townsend O. & G. Co., Smoot 11	¶0.05	2605
D. T. Orndoff, Keney 1	¶ 0.2	990

Cuyahoga County—

L. E. Butzman, Fee 1	¶0.4	2514

Guernsey County—

James Renshausen, Rabe 1	*	1070

Knox County—

Ohio Fuel, Lepley 1	*	2787
Upham Gas Co., Busonbefy 3 1 &	¶0.03	3903

Licking County—

Ohio Fuel, Shaw 1	*	2641
George Lacknett, Maharg 1	¶ 1.5	2697
Ray Penick et al, Lynn 4	¶ 0.5	2238
McClay Bros., Claggett 1	¶0.03	3037
C. A. Davis, Sawyer 1	¶ 0.5	2547

Medina County—

Preston Oil Co., Grigsby K7	5	526
Grigsby 3 E7	*	500
Clapp FD6	5	552
Clapp FO3	*	500
Clapp G4	5	496
Clapp H4	5	505
R. C. Holmes et al, Hostettler 09	5	514
Hostettler 010	*	497
Hostettler 011	5	489
Hostettler 012	5	501
M. L. Packard et al, Crocker 12	85	450
H. C. Bishop, Hummell 1	*	3481

Meigs County—

Ohio Fuel, Nelson 4	*	957
Utsinger et al, Hewitt 2	¶0.13	625
Preston Oil, Woode 1	30 & ¶0.05	1647

Monroe County—

A. E. Robinson et al, Hickels 1	5	1265
Hope Const. & Refg. Co., Simmons 2	¶0.49	1070

Muskingum County—

S. E. Large et al, Long 1	¶0.02	3933
Ohio Fuel Gas Co., Winters 1	¶14.0	4123
Pure Oil Co., Dickson & Pryor 1	¶ 1.0	4190

Noble County—

Metcalf, Masters 13	3	1023
Fassett & Harper, Boley 1	*	195
Salt Run Oil Co., Davis 1	1	264

Perry County—

Abe Snyder et al, Snyder 1	¶0.2	3270
Davis et al, Orr 1	¶1.3	2777

Tuscarawas County—

J. A. Upham, Tuscarawas Coal Co. 1	¶0.02	5170

Washington County—

Joseph R. Hall, Macksburg Ridge	1 & ¶0.01	421
Porter et al, Male 1	¶ 0.6	1414

Oklahoma

Caddo County—

Ohio, Pau-Kune 19, se ne se se 3-5n-9w	1039	3438

Carter County—

L. Sanders, Harmon 2, se ne se sw 21-1s-2w	*	1475
Gibson & Jennings, Griffin 10, nw se se 20-4s-2w (pb 3058)	61	3161

Hughes County—

T. J. Lynch, Canard 1, ne sw ne 27-9n-10e	¶3.7	2320

Latimer County—

LeFlore, Orr RO45, sw sw se 3-6n-22e	¶1.7	1610

Lincoln County—

Clark & Co., Soward 1, sw sw sw 15-15n-6e	*	4068
Skelly, Kilmers 1, nw se se 26-17n-3e	¶2.42	4491

Logan County—

Miller et al, Katscher 1, c n½ ne sw 7-16n-2w	*	5928

Okfuskee County—

Doke & Hughes, Guston 2, nw ne ne se 16-10n-11e (pb 1817)	*	2902
Malernee, Beard 3, sw se ne 7-11n-8e	200	3714
Shell, Harjo 1, sw ne nw 17-11n-9e (pb 3955)	33	3967
Root & Anderson, Parks 1, nw nw se 30-12n-8e	*	3863

Oklahoma County—

British American, School 1, nw ne ne sw 15-11n-3w (pb 6555)	250	6557

Payne County—

Bay Pet. Co., Townson 1, se ne se 14-18n-3e (pb 3520)	*	4221

Pontotoc County—

W. A. Delaney, Norris 1, nw sw ne 3-3n-6e	*	2085

Pottawatomie County—

Sinclair Prairie et al, Cummings 4, nw ne ne 17-7n-4e	216	4108
Atlantic, Merkle 6, sw sw ne 32-8n-5e	103	4333

Seminole County—

McQueen, McCan 7, sw ne ne 33-7n-6e	35	2875
Stanolind-Amerada, Buck 1, nw se nw 11-10n-7e (pb 4400)	102	4435

Stephens County—

Skelly Oil, Nichols 13, sw nw se 36-1s-5w	70	863
Mudge Oil, Broadben 14, se nw nw 1-2s-5w	10	719

OLD WELLS DEEPENED

Pottawatomie County—

Reda Pump, Rice 2, ne se ne 32-7n-4e (otd 4295)	32	4341

Seminole County—

Carter, Aldridge 1, c s½ sw ne 35-11n-6e (otd 4111)	34	4125

Pennsylvania

Bradford District—

L. F. Kinley et al, Mentz	2	....
D. W. Daly No. 2, Bing 467-484	1	....
Melvin Towne Oil Co., fee	1	....
Mix Creek Oil Co., fee	1	....
Quinlan Bros., fee	1	....
Messer Oil Corp., Redfield	1	....
P. & L. Oil Co., Duke & Taggerty	5	....
Mathew Lippert et al, Lippert	5	....
Roggenbaum Bros., McCaffery	1	....
Kervin & Merry, Childs	½	....
Bradford Transit Co., 22 wells	22	....
Forest Oil Corp.	1	....
Forest Petroleum Corp.	1	....
Niagara Oil Corp., 4 wells	4	....

Water Intake Wells—

Esther Oil Co., Inc., Lamton	..	....
Grant & Mohan Oil Co., No. 3 Bing. 486-7	..	....
Melvin Towne Oil Co., fee	..	....
Curtis Oil Co., No. 2, Bordin	..	....
Forest Oil Corp., 3 wells	..	....
Forest Petroleum Corp., 3 wells	..	....
Niagara Oil Corp., 6 wells	..	....

New York-Penn Gas Field—

Cunningham Natural Gas Co., Alice Ludden No. 2	¶	....

Middle District—

E. V. D. Selden, Bonsell	*	....
Gibson Wade Gas Co., John Obenrader	¶	....
Oil City Trust Co., Lyle	2	....
Guenzl & Hamilton, J. Surrena	2	....
Six Mile Oil Co., Kirkpatrick	1	....

Water Intake Well—

McCool Bros., Lot 107	..	....

Butler-Armstrong District—

Jewell & Co., James W. Fleming	*	....

Texas Panhandle

Carson County—

McGill et al, Cooper 8-A	137	3066

Gray County—

Christie & Hickman, Gethings 3	98	2779
Clayton-Dwyer Drl. Co., Lovett 7	65	2970
Gardner Bros., Barrett 7	192	3310
Phillips, Tay 3	110	3022
Texas Co., J. W. Brown 10	312	3300
M. Davidson 6	264	2932
Dave Pope 7	152	3309
Taylor 4-F	349	2918
Wilcox O&G Co., Worley-Reynolds 38	275	3040

Hutchinson County—

Continental, Sanford 3	195	2831
McIlroy Oil Co., Halle 17	195	3000
Phillips, Supreme 7	261	3275
Timmis 8	318	3205
Whittenburg 60	223	2853
Shell, Harvey Sisters 36	303	3089
Stanolind, Jasper 2	147	3211
Lewis 13-B	191	3064

Moore County—

Texoma Natural Gas Co., Coon-Sneed 10-M	¶16.7	3262
Sneed 27-P	¶ 8.3	2874

United States Well Completions—*Continued*

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Emma)—		
Montecito Oil Corp., Cowden 3	1095	4268
Cowden 7	1374	4277
Sinclair Prairie, Cowden 12	948	4226
Borden County (Wildcat)—		
Anderson-Prichard-Osage Drl. Co., Clayton-Pure 1	•	4503
Cochran County (Slaughter)—		
Atlantic, Boyd-Humble 30	1428	5063
Magnolia, Woodley 17	864	4995
Crane County (Sand Hills Deep)—		
Gulf et al, Tubb 6-A	•	5887
Crockett County (Todd Deep)—		
Amerada et al, Todd 1-F	3104	6060
Ector County (Foster)—		
Cities Service, Johnson 1-G	186	4215
Forest Dev. Corp., Moss 6-A	254	4275
T. P. Coal & Oil Co., Johnson 6	423	4270
Ector County (North Cowden)—		
Texas Co., Holt 16	937	4780
Gaines County (Seminole)—		
Amerada, Turlin 14	596	5300
Hockley County (Slaughter)—		
Honolulu, Mallet 8-A	1445	5053
Slaughter 8-A	780	4990
Slaughter 24-B	1299	5024
Magnolia, Mallet 6-F	923	5030
Mallet 16-J	1173	5044
Texas Co., Mallet 17-E	1317	5029
Slaughter 52	1604	5010
Slaughter 57	1165	5005
Slaughter 58	1568	5030
Howard County—		
Sinclair Prairie, Dodge 75	150	2850
Texas Land & Mtg. Co. 8	60	2850
Mitchell County (Northwest)—		
F. W. Merrick, E. T. Strain 2-A	220	1762
Pecos County (Apco)—		
Superior Oil Corp.-B. McCandless, Crockett 1 (pb 4760)	1086	4851
Pecos County (Taylor-Link)—		
Landreth Prod. Corp., University 6-K	190	1679
Sam Letwin et al, University 3-E	303	1625
Scurry County (Sharon)—		
D&R Oil Co., O. L. Burney 2	90	2461
R-Y Oil Co., Bishop 3	136	2439
O. L. Burney 1-B	•	2455
Stonewall County (Carlisle)—		
Leader Oil Co., Bilberry 1	•	5700
Upton County (McClintic)—		
T. P. Coal & Oil Co., Bell 2-A	290	3255
Ward County—		
Gulf, Estes 152	116	2632
Magnolia, Sealy 4-42	317	2953
Winkler County (Emperor)—		
Phillips, McCabe 9	96	2823
Winkler County (Halley)—		
Skelly, Halley 43 (pb to 2992)	60	3211
Sam Weiner et al, Halley-Texaco 1-B, (extension)	370	3217
Winkler County (Keystone)—		
Ralph Lowe et al, Zachary-Atlantic 4	143	3280
Parker Drl. Co., Ward 3	105	3295
Standard of Texas, Baird 12, sec 19	297	3346
Baird 14, sec 19	395	3345
Yoakum County (Wasson)—		
American Liberty, Keller-Texaco 15	190	5173
Drl. & Explo. Co., Inc., Randall-Humble 3-A	120	5100
Humble, Randall 12	368	5125
Magnolia, Bennett 11	335	5265

OLD WELL DEEPENED

Crane County (Gulf-McElroy)—		
Gulf, McElroy 52 (otd 2900)	232	2960

Texas Gulf Coast

Brazoria County (Wildcat)—		
H. A. Potter & C. L. Archer's MacDonald 1	•	9014
Brazoria County (West Columbia)—		
Texas Co., J. G. Phillips 26	353	5982
Hardin County (Batson)—		
Ada Belle Oil Co., Wirt Davis 304	10	1043
Harris County (Goose Creek)—		
Grace Oil Co., H. Busch et al 2	90	2590
Harris County (Humble)—		
McDonald & Hince, Lucy O'Neil 1	5	770
Wilson Oil, H. C. House 7	61	3084
Jefferson County (Spindletop)—		
Unity Oil, Gladys Etz 221	26	840
Matagorda County (North Markham)—		
Ohio Oil, J. C. Carlson 12	209	8125
Wharton County (Magnet)—		
Humble, Cockburn 44	97	5543
Wharton County (Withers)—		
Texas Co., Pierce Est B-81	58	5549

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Texas Co., Pinkston 16	1000	3661
Kilgore Area—		
E. J. Hunter et al, Dickson 1	120	3600
Shell, Laird 38-A	2500	3628
Sinclair Prairie, King 67-A	2000	3540
John Wrather et al, I&GN Ry. 22-A	360	3598
Longview Area—		
Selby O&G Co.-Lewis Prod. Co., Snavely 27-A	1000	3560
Tide Water Associated, Lake Devernia 53	3000	3534
Freestone County (Cayuga)—		
Amerada, H. Berk 16	146	4031
Henderson County (Wildcat)—		
British-American O.P. Co., Young 1	¶5 & 355	8474
Van Zandt County (Wildcat)—		
Ownby Drl. Co.-E. L. Smith, Bogue 1	•	4212
Wood County (Hawkins)—		
Cable Tool Drl. Co.-O. J. Perrin, Isaac 1 (½-ac)	383	4850
Humble, A. Crisman 1 (30.61-ac)	228	4998
E. M. Faulk 2 (163.38-ac)	422	4872
Stanolind, Miller 1 (118½-ac)	452	4856
Navarro Oil Co., Green 1 (78-ac)	202	4846
Marion County (Smithland-Pine Island)—		
Livingston et al, A. T. Browne 1, Gaines Coore sur	78	2308
W. M. Blackshear, Carrie Moseley 4, Barton Sur	•	2313

Southwest Texas

CORPUS CHRISTI DISTRICT

Brooks County (Alta Mesa)—		
Standard of Texas, Mestina 19 (tr 1)	22	3016
Goliad County (Hords Creek)—		
Brown & Wheeler, Kauffman 2-C, blowout	†	2030
Jackson County (Francitas)—		
Francitas Gas Co., Broughton 4	¶60 & 300	8680
Jackson County (Lolita)—		
Magnolia, Four-Way 7	450	5948
Jackson County (N. LaWard)—		
E. M. Jones, Olsovsky 1, ne outpost	•	5350
Magnolia, Gordin 2	500	5237
Moore & Ahern, Burditt 2	475	5237
Jackson County (Texana)—		
Sinclair Prairie, Westhoff & Egg 1, n outpost	•	7788
Jackson County (West Ranch)—		
Magnolia, West 197-A	¶5.78	5965
West 210-A	550	5767
West 216-A	650	5750
West 217-A	500	5755
Jackson County (Navidad)—		
W. S. Boyle, Whitley 1, new sd 4053-70	¶35	5007
Jim Wells County (Seeligson)—		
Magnolia, Seeligson 23	450	5978
Jim Wells County (Orange Grove)—		
Atlantic, Schuenemann 4	300	5087
Jim Wells County (LaGloria)—		
LaGloria Committee, Unit 7, dual sand	¶100 & 300	6952
Nueces County (Agua Dulce)—		
Tom Graham, F. Saenz 1	¶60 & 200	7060
R. M. Teachant 1	¶60 & 200	6950
Hewitt & Dougherty, Ariedge & Powers 1	600	7068
Nueces County (Minnie Bock)—		
Clark & Cox, Robertson 2	125	3818
Nueces County (Wildcat)—		
G. I. Warren, Cooper 1	•	7016
Refugio County (Refugio)—		
Hewitt & Dougherty, Clarkson 2	450	6200
Sunray Oil Co., Mitchell 5	275	6563
Refugio County (S. McFaddin)—		
Rutherford & Gulfshore, P. H. Fagan 3	300	5650
Refugio County (Tomoconnor)—		
Quintana, F. V. W. Heard 49	1800	5929
Victoria County (Coletto Creek)—		
Albert Plummer, Terrell 3-C	425	4730
Victoria County (Cologne)—		
Cox & Hamon, Emma Martin 1	•	5135
Victoria County (N. McFaddin)—		
Gulf, Traylor 2-C	¶20	6005
Willacy County (Willamar)—		
Pan American, Estelle Hodge 1	600	7861

SAN ANTONIO DISTRICT

Bastrop County (Lentz)—		
Furlong & Thompson, Lentz 2-B	550	2237
Bexar County (Gas Ridge)—		
Gas Ridge, Inc., Hamilton & Swain 48	2	440
Southerst Dr. Co., Covel 38	2	450
Caldwell County (Tenney Creek)—		
Elimag Oil Co., Perry 3	125	2438
Guadalupe County (Darst Creek)—		
E. A. Tapp, Posey 4	18	2629
Wilson County (Wildcat)—		
101 Oil Co., Hierholzer 1, R. Salinas Gr	•	1056

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United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
LAREDO DISTRICT		
Duval County (Driscoll)—		
Continental, Driscoll 72-A	650	3415
Duval County (Lundell)—		
Humble, P. White 17-B	¶12	1560
Jim Hogg County (Colorado)—		
C. Andrade, Trevino 5-H	500	2750
Humble, King-Colorado 42-B	550	2844
Starr County (Kelsey)—		
Humble, McGill 85	*	5250
Starr County (Sun)—		
Sun, Margo 1	650	4692
Starr County (Wildcat)—		
F. A. Gillespie & Sons, Guerra 2	*	1690
Zapata County (Escobas)—		
Dulup Oil Co., Gracia 10-C	*	1161
West Central Texas		
Brown County—		
R. H. Roark et al, Lawson 1	*	1222
Callahan County—		
T. S. Stanfield et al, Pittard 8	¶1	434
Pittard 9	8	316
Valley Osage Oil Co., Slaughter 3	10	381
Coleman County—		
States Oil Corp., White 1-B	1016	3623
Comanche County (Wildcat)—		
W. G. Forson et al, Sliger 1	*	835
Eastland County (Wildcat)—		
R. H. Gaddy et al, Vestal 1	*	2653
Jones County—		
Clark & Cowden, Wimberly 1	516	2235
Palo Pinto County (Wildcat)—		
Hickok P&D Co.-Harry Reynolds Gauldin 3	*	5200
S. A. Jones et al, Rogers 1	*	1485
Taylor County (Merkel)—		
Lewis Prod. Co., Golightly 1	269	2610
Staley Oil Co., Morgan 1	365	2610
Taylor County (Wildcat)—		
Butler-Horne Drl. Co. et al, Merchant 1	*	2475
OLD WELL DEEPENED		
Jones County—		
J. L. Collins & Co., Fikes 1 (otd 2246)	180	2549
North Texas		
Archer County (Griffin-Kadane)—		
K. & G. Prod. Co. (was Jack Kadane, Tr.) Griffin 1-D	744	4351
Archer County (Hull-Silk Deep)—		
Humble, Wilson 11	504	4597
Archer County—		
Deep Oil Dev. Co., Griffin 5-A	78	1621
Henry Grace et al, Wilson 3-B	33	1536
Baylor County (Wildcat)—		
Tom Hunter-King Oil Co., Robertson 1	*	3026
Clay County—		
Fisher & Kahn, Taylor 2	*	1346
Geo. Golden et al, 1st. Texas Jt. Bank 9-C	75	1130
Johnson & Kourl, Taylor-Elliott 6	*	1152
Perkins-Cullum, Taylor 20-A	128	1059
Staley Oil Co., Hamilton 5	10	1148
John Webb and Sid Taylor, Hamilton 1	*	1340
Clay County (Ringgold)—		
Gulf, Spring-Worsham 5 (pb to 5669 ft)	150	6163
Cooke County (Wildcats)—		
Lucas & W. F. Russell, Powers 1	*	1304
W. F. Russell et al, Bundy 1	*	1218
Cooke County—		
F. W. Merrick, Inc., Maurer 5	13	758
E. B. Russell et al, Lynn 5	10	1106
Haskell County (Wildcat)—		
Joe Worsham et al, G. McLennan 1	*	3506
Jack County—		
Hanlon & Buchanan, Myers 1	*	3601
Panhandle Ref. Co., Derrick 5	732	3066
Montague County (Wildcat)—		
J. A. Chapman-McFarlin et al, Fowler 1 (pb to 4863 ft)	912	6008
Throckmorton County—		
Burk Royalty Co., Housley 11	20	671
Housley 12	50	694
Housley 13	15	718
Housley 14	33	697
Housley 15	34	728
Owenwood Pool No. 3, Housley 18	¶	735
Wichita County (K-M-A Ellenberger)—		
Deep Oil Development Co., Bradley 4-E (pb to 3992 ft, new pay)	400	4495
Fain-McGaha Oil Corp., Griffin 11-B-E	840	4370
Panhandle Ref. Co., Reilly-Griffin 2-E	*	4470
The Texas Co., Min Thom 11	403	4375
Wichita County (K-M-A)—		
Hanlon & Buchanan, Denny 1 (pb to 4105 ft)	15	4846
Huckleberry & Cline, Stone 1-A	360	3612
Wichita County—		
Perry Browning et al, Warren 5	70	1771
W. H. Hammon-Hanlon-Buchanan, Fassett-Tuttle 49-C	*	650
R. G. Drl. Co., Warren 5	55	1767
Wilbarger County (Fargo)—		
Amerada, G. W. Luedtke 1-A	249	3980
J. H. Parker 3, (pb to 3935 ft)	106	4062
The Texas Co., Anderson 2	151	4033
Wilbarger County—		
W. T. Waggoner Est., fee 34-AA	50	1700
Young County (Wildcat)—		
M. R. Stipe et al, Schlegel 1	*	1121
Young County—		
H. Craig et al, Wright 2	*	1024
Dorian & Mitchell, Grigsby 2 (pb to 4025 ft)	65	4510
Panhandle Ref. Co., Allar Co-Hunt 1-A	*	2715
Pemeta Oil Co., Robinson 8-B	*	725
Shell, Bloodworth 2-A	98	4919
H. B. Streit et al, Jacks 11-B	*	580
M. S. Thomas et al, Dyer-Smith 6	4	585
H. W. Wier et al, Burgess 1	*	618
GAS INPUT WELL		
Cooke County—		
Trumpter Pet. Corp., Stacey 1-A	*	742
OLD WELLS DEEPENED		
Foard County (Johnson Ranch)—		
The Texas Co., Johnson 3 (otd 3577) (pb to 3568)	¶	4568
Wichita County—		
Rubsam-Switzer-Widner, McClure 19-A (otd 587) (pb to 587)	3	841
Wyoming		
Carbon County (Elk Mountain)—		
Ohio Oil Co., Union Pacific 1, nw ne ne 33-20n-81w	*	4803
Carbon County (Mahoney)—		
Sinclair-Wyoming, Gov't. 5-F, c ne nw 34-26n-88w	25	4521
Natrona County (Cole Creek)—		
General, 75-17-G, nw ne se 17-35n-77w	91	4640
Park County (Oregon Basin)—		
Yale Pet. Co., Frisby 2-B, ne ne se 32-52n-100w	240	3418
Weston County (Osage)—		
C. L. Foster, Fee 4, nw sw se 7-46n-63w	5	883

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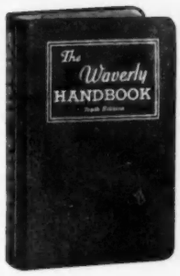

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WILDCAT REPORT
New Starts and Completions

CALIFORNIA
FIRST REPORTS

Kern County—J. Paul Getty's Portals Corp. 1, 5-30-29, rig. R .S. Bolling's Quinn 3, 15-25-27, rigging. Continental's Lachenmaier 1, 36-27-24, foundation. Richfield's Union Avenue 2, 6-30-28, grading.

Orange County—Atlas Oil Co.'s Kraemer 1, 36-3-9, grade.

Santa Barbara County—John W. Lee's Title Guarantee 1, 33-10-33, lcn.

Ventura County—Richfield's Ojai 44, 13-4-22, grading. Shell's Santa Paula y Saticoy 1, 21-3-21, lcn.

COLORADO
COMPLETION

Huerfano County—S. W. Pressy's Alamo 3, se sw nw 10-27s-68w, abnd Dakota sand 1510-1522 ft td, 500 ft water in hole, no shale, Alamo district.

ILLINOIS
FIRST REPORTS

Clark County—Swan-King Oil Co.'s Claypool 1, sw ne se 1-9n-14w, lcn.

Clay County—Gulf's Hastings 1, sw se sw 12-4n-7e, lcn.

Clinton County—Jack Darnell's Beckemeyer 1, se nw sw 25-3n-3w, lcn.

Coles County—B. F. Williams' Alexander 1, c w½ ne ne 16-11n-7e, lcn.

Edwards County—Mabee Drlg. Co.'s Smith 1, nw nw se 7-3s-10e, dr.

Hamilton County—Mid. Sun Oil Corp.'s Babler 1, s½ sw se 36-4s-5e, lcn. Ryan Oil Co.'s Mitchell 1, s½ se sw 29-4s-6e, lcn. Sun Oil Co.'s Moss 1, w½ nw ne 12-6s-5e, lcn.

Jackson County—E. S. Adkins' Parrish 1, nw ne nw sw 9-7s-1w, dr.

Jefferson County—Mid. Sun Oil Corp.'s Adams 1, n½ ne nw 14-2s-3e, lcn. T. M. Conray's Carson Est. 1, n½ ne se 6-4s-2e, lcn.

Wabash County—Hilton Oil Co.'s Skelton 1, nw ne sw 36-1n-14w, lcn.

White County—Mark Wagner et al's Daly Trustee 1, n½ sw sw 7-4s-10e, lcn. N. V. Duncan et al's Powell 1, nw nw se 1-7s-8e, lcn.

COMPLETIONS

Clay County—Rockhill's Stanford "A" 1-A, nw sw nw 29-3n-8e, abnd 3155 ft. Walsh-Drye Drlg.'s Rudolphi 1, ne ne se 1-4n-8e, abnd 3135 ft.

Edwards County—Seaboard Oil Co.'s Nelson 1, e½ se sw 32-1n-14w, abnd 3240 ft.

Franklin County—Eason Oil Co.'s U. S. Fuel 1, ne nw se 25-5s-4e, abnd 3347 ft.

Hamilton County—Ohio Oil's Aydt 1, se nw se 3-4s-5e, abnd 3596 ft.

Jefferson County—Carter Oil's Sanders 3-D, c se se 4-1s-2e, abnd 3735 ft.

Wayne County—Bell Bros., Fuhrer 1, w½ ne nw 33-1s-6e, McClosky 3158-66 ft, 3192-96 ft, td 3205 ft, 240 bbls oil. Rexick's Gen. American Life 1, se sw nw 30-2s-6e, abnd 3431 ft.

White County—W. W. Gray's Fee "A" 17, se nw nw 14-3s-14w, Cypress sd 2529-2541 ft, td 2541 ft, 80 bbls oil. First Nat'l Pet.'s Reeves Hrs. 3, se nw sw 20-3s-14w, Biehl sd 1870-84 ft, td 2318 ft, 46 bbls oil. Skelly Oil's Winger 1, nw nw sw 18-4s-10e, Benoist 3018-36 ft, pb 3045 ft, td 3317 ft, 16 bbls oil. Jarvis Bros. et al's Ackerson 1, ne ne sw 34-6s-10e, pb, abnd 3095 ft.

INDIANA
FIRST REPORTS

Gibson County—Roberts & Youngblood's Cliff 1, 152 ft s of c se se 22-1s-12w, lcn. Mile B. Siegel's Armstrong 1, 68-1s-10w, lcn.

Jasper County—National Pet. Co.'s Stewart 1, nw ne ne 26-29n-5w, lcn.

Rise County—D. L. Norris' Peach 1, 230 ft e of se sw nw 19-1n-6w, lcn.

Vanderburg County—Paul F. Osborne's Edmond 1, se sw nw 16-7s-11w, lcn.

White County—Ohio Oil Co.'s Horton Hrs. 1, ne ne ne 1-28n-5w, lcn.

COMPLETIONS

Jasper County—National Petro.'s Wortley 1, c sw sw 19-29n-6w, abnd 959 ft.

Posey County—Cherry, Kidd et al's Sanderson 1, ne ne ne 7-7s-14w, abnd 2951 ft. Haines, Thomas et al's Schearer 1, ne ne nw 13-7s-13w, Tar Spgs. 1939-51 ft, td 1951 ft, 110 bbls oil.

KANSAS
FIRST REPORTS

Barton County—J. J. Lynn's Kraft 1, c s½ se nw 36-16s-11w, sur, hole. W. C. Jackson et al's Smith 1, sw se sw 6-20s-15w, cellar.

Jefferson County—E. V. Jackson et al's Northwest Mutual 1, c se ne, lcn.

Rooks County—Cities Service Oil's Caterdal 1, se sw sw 14-10s-19w, lcn.

COMPLETIONS

Barton County—Central Pet. et al's Unruh 1, c e½ se se 9-20s-15w, Anhy. 995 ft, Topeka 3077 ft, Lansing 3414 ft, Congl. 3685 ft, Arbuckle 3726-98 ft, no show, abnd.

Cowley County—Wakefield et al's Wilson 1, sw sw nw 7-32s-4e, Base Stalnoker 2085 ft, K. C. 2405 ft, Layton 2455-2505 ft, HFW 2570-75 ft, Bartlesville zone 2935 ft, Mississippi 3034-3278 ft, Misener 3348-52 ft, Arbuckle 3352-60 ft, 900 ft water in hole 3 hrs, abnd.

Graham County—Cities Service Oils' Barber 1, ne ne ne 27-9s122w, Anhy. 1812 ft, Neva 2830 ft, Topeka 3330 ft, Lansing 3550 ft, Base K. C. 3735 ft, Arbuckle 4018-58 ft, td, no show, abnd.

Leavenworth County—Mosbacher et al's Bell Estate 1, nw ne ne 12-10w-20e, Base K. C. 650 ft, Bartlesville sd 1332 ft, 5 in. 1334 ft, 900,000 cfg 1336-40 ft, broken sand 1330-72 ft, Mississippi 1372 ft, sso 1380 ft, td 1487 ft, pb 1459 ft, 1,429,000 cubic feet gas.

McPherson County — Westgate-Greenland Oil's Gustafson 1, c s½ se nw 5-17s-1w, Lansing 2080 ft, Mississippi 2691-3723 ft, abnd 3723 ft.

Rice County—Hartman & Mitchell Drlg.'s Walstein 1, nw nw se 8-21s-6w, Anhy. 1020 ft, Lansing 2930 ft, Congl. 3508-09 ft, Mississippi 3541 ft, show oil, td 3560 ft, 1000 ft water in hole, abnd.

Thomas County—John Ackard's Murphy 1, se se ne 24-7s-34w, td 428 ft. abnd. John Ackard's Murphy 2, se se se 24-7s-34w, Dodge shale 402 ft, abnd 602 ft.

KENTUCKY
FIRST REPORT

Todd County—Rex Pyramid's Gordon Hrs. 1, 4-D-30, lcn.

COMPLETIONS

Grayson County—Reulis Oil Co.'s Davidson 1 (7), 10-M-35, abnd 342 ft.

Hancock County—W. J. Flescher's Moorman 1 (3), 7-O-35, abnd 312 ft.

NORTH LOUISIANA
FIRST REPORTS

Caldwell Parish—Carter, Louisiana Central 1, se sw 22-13n-2e, rig.

Catahoula Parish—Carter & Phillips, Tensas Delta F-1, ne se 26-6n-5e, mat.

LaSalle Parish—Carter & Phillips, Tensas Delta D-1, c se sw 25-6n-3e, mat.

Winn Parish—Carter, Urania 1, sw ne 31-12n-1e, rig.

COMPLETIONS

Catahoula Parish—Carter, Highland Farms 1, se ne 12-6n-4e, abnd 5835 ft.

LaSalle Parish—Carter, Tensas Delta I-1, se ne 1-5n-4e, abnd 6472 ft.

MICHIGAN
FIRST REPORTS

Montcalm County—Columbia Oil & Gas Co.'s Playmor Club 1, c e½ se se 11-10n-7w, dr.

Osceola County—Powers & Worsley's Briggs 1, c s½ se se 31-19n-10w, rig. Taggart and Sun's Wirth 1, c s½ ne se 22-18n-8w, dr.

COMPLETIONS

Allegan County—Clapsaddle & Harris' Malstrom 1, nw sw nw 19-1n-15w, Traverse 1167 ft, td 1170 ft, nip 10 bbls, after acid 25 bbls day, new field.

Newaygo County—E. B. Strom's Messner 1, sw sw ne 10-13n-14w, abnd 2860 ft.

Osceola County—Taggart Brothers Co.'s Yorhouse 1, c sw, 27-19n-8w, abnd 1749 ft.

Ottawa County—Lenoran Pet. Co.'s Rokus 1, nw sw sw 10-5n-15w, Traverse field, 1524 ft, abnd 1578 ft.

MONTANA
FIRST REPORT

Garfield County — H. H. Schwartz, Jr.'s Gov't. 1, sw sw nw 26-15n-30e, semi-wildcat east fault block Cat Creek field, dr Colorado shale 550 ft, 8¼-in csg cmtd 60 ft.

COMPLETION

Cascade County — Bushford Petroleum Synd.'s Shannon-Roberts 1, c sw ne 12-20n-1e, Vaughn area, abnd 3300 ft.

NEW MEXICO
COMPLETIONS

Eddy County—Sanders Bros. et al's Leonard 1, c nw sw 34-17s-30e, elev 3742 ft, new pool, shot 120 qts nitro 2940-80 ft, pay 1912-82 ft, flowed 77 bbls initial.

Lea County—Culbertson & Irwin, Inc.'s Wingfield-Texaco 1, c ne nw 4-19s-33e, elev 3721 ft, top anhydrite 1445 ft, salt 1570 ft, abnd 4634 ft.

OKLAHOMA
FIRST REPORTS

Caddo County—Thornton-Westock's Cooke 1, ne se ne 35-5n-9w, sd.

Creek County—L. S. Youngblood et al's Moore 1, nw ne sy 7-15n-9e, C. & P.

Dewey County—Ruso Drlg. Co.'s Senter 1, se se nw 5-16n-17w, rum.

Garvin County—Patsy Oil Co.'s Cardwell 4, se ne se 16-5n-3e, dr.

Hughes County—W. K. Jones et al's Bryant 1, se sw sw 29-5n-9e, woc. Barnsdall's Skinner 1, se sw nw 11-9n-10e, lcn.

Lincoln County—Skelly Oil Co.'s Steward 1, ne sw ne 2-13n-2e, dr.

Logan County—Helmerich & Payne's Olinger 1, se sw ne 22-18n-2w, lcn.

Love County—Walter Neustadt et al's Wilkins 1, se c 8-6s-2e, lcn.

Noble County—Carter Oil's School Land 1, ne ne sw 13-21n-2e, lcn.

Payne County—Halko's Goebbel 1, se nw ne 8-17n-1e, dr.

Pittsburg County — Public Service Co.'s Tribal Lands 1, c e½ se ne 9-4n-16e, mim.

Pontotoc County—Lake Oil Co.'s Moore 1, se nw ne 28-5n-4e, sd 700 ft.

Tillman County—Anderson-Pritchard's Locke 1, c n½ nw nw 28-2s-15w, lcn.

Stephens County—Glen Grimes et al's Baker 3, nw c sw ne 35-2s-6w, mchn. Wm. H. Adkinson et al's Retainers Ins. Co. 1, c se sw nw 3-2n-9w, mog.

COMPLETIONS

Creek County—Major Oil et al's Estate Land Co. 1, se se nw 2-17n-9e, Oswego 1821-64 ft, sso 1825-48 ft, sand 2015-2080 ft, sand 2275-90 ft, Inola 2389-94 ft, Bartlesville sand 2470-2535 ft, Mississippi 2775 ft, Woodford 3102 ft, Viola 3131 ft, Dolomite 3146 ft, Wilcox 3150 ft, td 3181 ft, abnd.

Okfuskee County—Konawa Operating Co.'s Franks 1, ne sw sw 3-11n-8e, Booch 3345-61 ft, Gilcrease 3430 ft, Cromwell 3618 ft, abnd.

WEST TEXAS
FIRST REPORTS

Borden County—C. E. Hyde & Dean Bros.' Miller-Looney 1, nwc se T&P sec 10, blk 33, T-4-N, sp & sd.

Crockett County—J. B. Moncrief-Helmerich & Payne, Inc.'s Couch-Texaco 1, c nw se sec 30, blk QR, rur 6500-ft test.

Dawson County—Placid Oil Co. (H. L. Hunt's) Higginbotham 1, c nw nw Moore CSL lab 13, leag 269, mim for 5000-ft test.

Terrell County—Briggs Oil Co.'s Joe Kerr 1, 790 ft from n and 880 ft from w lines MK&T sec 18, blk D-5, rust.

COMPLETION

Borden County—Anderson-Prichard Oil Corp.-Osage Drl. Co.'s Clayton-Pure 1, 660 ft s and e of swc E. L. sec 23, but in John DeShazo sec 1, blk 1, elev 2912 ft, anhydrite 1520 ft, 1st lime 3210 ft, solid lime 3320 ft, abnd 4503 ft.

NORTH TEXAS
FIRST REPORTS

Denton County—Tucker et al's Tucker 1, 990 ft from s and 2000 ft from w of John Carter sur A-237, 3 mi se Sanger, mim.

Montague County—Continental Oil Co.'s P. Mueller 1, 467 ft out of s cor of ne 116.86-ac tr, P. Hamilton sur A-335, 6 mi e Bowie, lcn.

Throckmorton County — Jones-Stasney-Groover-Rose's Brockman 2, 660 ft out of swc blk 94, Comanche Indian Reservation, lcn.

COMPLETIONS

Baylor County—Tom Hunter & King Oil Co.'s Robertson 1, 4950 ft from n and 4620 ft from e of Robertson CSL sur, A-280, top Palo Pinto 3014 ft, abnd 3026 ft.

Cooke County—Lucas & W. F. Russell's O. E. Powers 1, nwc of 80-ac tr, H. Nail sur A-780, abnd 1304 ft. W. F. Russell et al's Bundy 1, nwc 52-ac lse, P. P. Cady sur, abnd 1218 ft.

Haskell County—Joe A. Worsham et al's McLennan 1, swc 370-ac tr, S. C. Robertson sur 40, A-352, top Adams Branch 2588 ft, abnd 3506 ft.

Montague County—J. A. Chapman-McFarlin-Deep Oil Dev. Co. et al's Fowler 1, 330 ft out of M/N/SE cor of J. W. Massie sur A-463, new pool, top Bend 5566 ft, Simpson 5805 ft, Ellenberger 5831 ft, pb from 6008 ft to 4864 ft, shot 110 quarts nitro in Strawn pay 4835-62 ft, flowed 96 bbls oil 2½ hrs ½-in. with pipe collapsed 4800 ft.

Wichita County—Deep Oil Dev. Co.'s Bradley 4-E, 540 ft n and 5 ft e of swc J. Beckman sur A-368, new pay (1st Bend production) K-M-A field, top Bend lime 3965 ft, top Ellenberger 4455 ft, pb from water 4492-95 ft to 4025 ft, perforated 70 shots 3963-92 ft, acidized, flowed 50 bbls 3 hrs ¾-in.

Young County—M. R. Stipe et al's Schlegel 1, nec sw TE&L sec 74, abnd 1121 ft.

TEXAS GULF COAST
FIRST REPORTS

Fort Bend County—Placid Oil Co.'s (H. L. Hunt) John M. Moore 1, nw Rosenberg, 585 ft from e & w lines & 1489 ft from sl of 80-ac, Henry Scott lge, 1 mi n Magnolia's Huntington 1 dry hole, pd 9000 ft, rigging up.

Newton County—Cockburn Oil Corp.'s A. & M. College State Forest Reserve 1, 3 mi sw Bleakwood, 2208 ft e of w l & 2574 ft s of n l

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of John T. Lewis sur, ab 264, Patrick & Tyrrell, contr, preparing to drill.

Tyler County—Houston Oil & Republic Production's Theophilus Cushing-Fee 1, sw Joe's Lake field, 1400 ft s & e of nw cor of Theophilus Cushing sur, pd 7700 ft, rigging up.

COMPLETION

Brazoria County—H. A. Potter & C. L. Archer's R. D. MacDonald 1, between Hastings & Webster fields, Pearland area, W. D. S. Hall lge, Frio 6451 ft, td 9014 ft, abnd.

EAST TEXAS

FIRST REPORT

Cass County—W. A. Patterson, Tr., J. A. Abernathy 1, Solomon Hines sur, mat.

COMPLETIONS

Henderson County—British-American O.P. Co.'s Young 1, 660 ft out of swc 490-ac tr, Jos. Rice sur, 7½ mi sw Athens, new pool, elev 393 ft, top Woodbine 4142 ft, Georgetown 4898 ft, Massive anhydrite 7440-7606 ft, base Rodessa 7836 ft, top Pettit 8190 ft, top Travis Peak 8367 ft, pb from 8474 to 7874 ft, Rodessa (2nd Glen Rose) pay perforations 7608-41 ft, shut in to build up pressure, flowed 354.6 bbls 59.5-gr distillate and 31.6 bbls water, 5,086,000 ft gas ⅝-in choke.

Van Zandt County—H. B. Ownby Drl. Co.-E. L. Smith's Bogue 1, 500 ft w and 250 ft n of nec T. Buford sur, but in south Marshall University sur, 3 mi se Van, elev 465 ft, Pecan chalk 2485-2615 ft, top Austin chalk 3670 ft, Woodbine series 4110 ft, sand 4130 ft, abnd 4212 ft.

WEST CENTRAL TEXAS

FIRST REPORTS

Brown County—R. M. Ragsdale et al's Richardson 1, 1977 ft from n and 700 ft from w lines J. L. Phinn sur, sp.

Eastland County—Miles & Francisco's Mitcham 1, swc TE&L sec 3175, sp.

Shackelford County—Owenwood Pool No. 3's W. H. Green 1, swc n½ sw T&P sec 55, blk 11, lcn.

COMPLETIONS

Comanche County—W. G. Forson et al's Sliger 1, swc of John Harrison sur, abnd 835 ft.

Eastland County—R. H. Gaddy et al's Vestal 1, swc of Sam Damon sur, abnd 2653 ft.

Palo Pinto County—Hickok P&D Co.-Harry Reynolds' Gauldin 3, sec TE&L sec 1756, abnd 5200 ft. S. A. Jones et al's Rogers 1, sec TE&L sec 894, abnd 1485 ft.

Taylor County—Butler & Horne Drlg. Co.'s Merchant 1, 330 ft from n and 2687 ft from w lines s½ T&P sec 30, blk 16, elev 1710 ft, abnd 2475 ft.

SOUTHWEST TEXAS

FIRST REPORTS

Calhoun County—Amerada's Lavaca-State 1, tr 10, 1½ mi e Port Lavaca, loc 10,000-ft test.

Duval County—Henderson Coquat's R. Lopez 1, sur 455, 7 mi ne Bruni, mi 3000-ft test. W. C. McBride's Fite 1, sur 87, 2 mi sw Kreis fld, mi 3500-ft test. Newman Bros.' Garza 1, 1½ mi ne Kreis fld, dk 3200-ft test.

Goliad County—P. G. Benedum's Marshall 1, W. P. Smith sur, 5 mi n Goliad, lcn 5000-ft test.

Hidalgo County—Baldridge & King's Mayer & Weill 1, por 47, 9 mi s Mission, sp on 5000-ft test.

Jim Hogg County—Sam Cunningham's S. K. East 1, sur 36, 15½ mi sw Hebbronville, lcn 4200-ft test.

Jim Wells County—Gorman & Yoakum and Anderson-Prichard's L. L. Allen 1, lot 10, blk B, 1¼ mi nw Wade City, lcn 5300-ft test.

Lavaca County—W. S. Boyle et al's F. Roecher 1, M. Wooten sur, 10 mi se Halletsville, mi 9000-ft test.

Lee County—M. M. Miller & Sons' L. O. Smith 1, J. Popponoe sur, 1½ mi nw Ledbetter, lcn 3200-ft test.

San Patricio County—L. A. Douglas' J. & R. Ragsdale 1, J. A. Graves sur, 7½ mi sw Taft, dr 1500 ft.

Webb County—O'Neil, Bedwell & Shukeat's A. M. Bruni 1, blk 75, J. V. Borrego gr, 10 mi sw Mirando City, dk 2000-ft test.

COMPLETIONS

Jackson County—W. S. Boyle's Whitley et al 1, Francis G. Keller Lge, Ab 38, just n Navidad fld, comp est 35,000 mcf wet g fr perf 4053-70, sip 1700 lbs, new sd.

Nueces County—Guy I. Warren's Cooper 1, sec 180, 4 mi se Stratton fld, abnd 7016 ft.

Starr County—F. A. Gillespie & Sons' Guerra 2, sec 23, 15 mi n Roma, abnd 1690 ft.

Wilson County—101 Oil Co.'s Hierholzer 1, Salinas gr, 12 mi w Floresville, abnd 1056 ft.

WYOMING

FIRST REPORTS

Big Horn County—Carl Merz' Menger 1, ne ne se 22-49n-91w, Bonanza area, woc 8¼-in csg 86 ft.

Park County—Valentine & Carroll Kirk's W. R. Coe 1, ne nw se 27-50n-102w, North Spring Creek, unfaulted plunging anticline, surface Cody shale, moving in rotary for 3400-ft test through Pennsylvanian beds.

COMPLETION

Carbon County—Ohio Oil Co.'s Union Pacific 1, nw ne ne 33-20n-81w, abnd 4803 ft in Sundance sand yielding water, topped 4763 ft, elev 7953 ft.

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MEN IN THE INDUSTRY'S NEWS

CECIL IRBY, petroleum engineer, Turner Petroleum Corporation, Mt. Pleasant, has been elected chairman of the Michigan chapter of the American Petroleum Institute for 1942. He will succeed Marshall R. Joy, Cities Service Oil Company, who has been chairman of the chapter since its organization two years ago. Other officers for 1942 elected by the chapter were A. Ellen Morrow, C. L. McGuire, Inc., Mt. Pleasant, first vice chairman; Walker Franks, Gordon Oil Company, Grand Rapids, second vice chairman; Glen Sleight, Sun Oil Company, Mt. Pleasant, secretary-treasurer. New members of the advisory board include Joy, W. A. Thomas, Ohio Oil Company; William Brown, and C. L. Benezette, Oil Well Supply Company, all of Mt. Pleasant, and Guy Anderson, The Pure Oil Company, Reed City.

GEORGE J. O'BRIEN has been appointed assistant to the president and representative of the board of directors of Standard Oil Company of California in Los Angeles. He will also serve as chairman of the company's committee of executives in Los Angeles. In assuming his new position O'Brien relinquishes his duties as treasurer of the corporation, a position which will be taken over by J. H. Tuttle, who has been serving as a director and vice president. O'Brien has spent his whole business life with Standard Oil Company. He first served during vacation periods, when a student at the University of California, in the marine and manufacturing departments. His first work was as a sailor on the tanker J. A. Moffett in 1916. Thereafter he served in the sales and financial departments.

M. E. TEAGUE, production superintendent for Texas Pacific Coal & Oil Company, has been transferred from Eliasville, Texas, to Sundown, where the company has established separate staff to handle its development in the Slaughter field, most active in West Texas.

HARRY W. BELL, director of the minerals division of the Louisiana Conservation Commission prior to 1925, has been reappointed to this position, Joseph L. McHugh, Louisiana Conservation Commissioner, announced last week. He succeeds John L. Conner, who becomes assistant to the commissioner. Bell, who resides in Shreveport, has also worked for the United States Bureau of Mines, Lion Oil Refining Company, and more recently for the Rodessa Operators Committee.

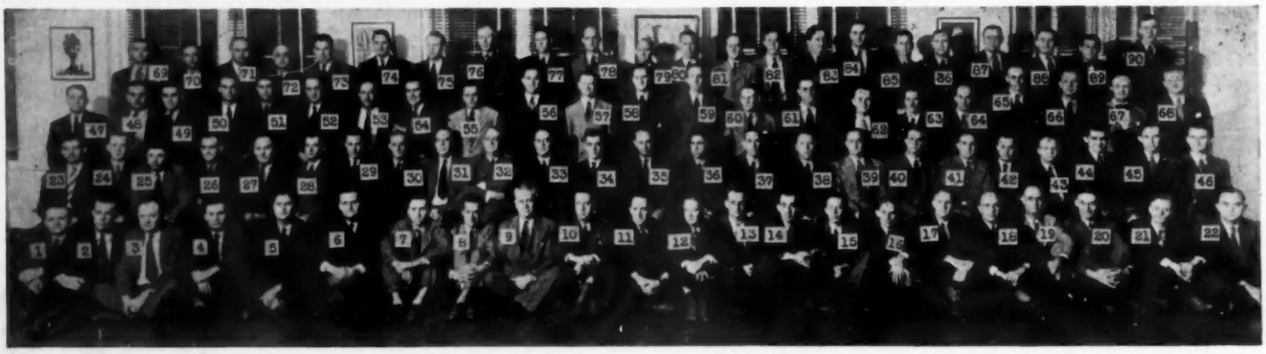
GEORGE L. NOBLE, JR., district manager of priorities for the Office of Production Management, Houston, discussed the question of priorities before about 100 geologists and petroleum workers at Alice, Texas, last week.

SAM ARONSON, geologist for Atlantic Refining Company since 1920, has resigned effective November 1 and will continue in the oil business as an independent operator with headquarters in Dallas.

KENNETH R. TEIS, formerly consulting engineer of Tulsa, has been named chief petroleum engineer for Sunray Oil Company, Tulsa. A graduate of Missouri School of Mines, Teis first entered the industry with Independent Oil & Gas Company which he left as chief engineer in 1928. At a later date, after obtaining structural engineering experience in the field, he was with Gypsy Oil Company and with Phillips Petroleum Company in Kansas as district engineer. In the early days at Fitts he became head of the engineering department for E. H. Moore, Inc., chief operators in that field.

R. L. PUERIFOY, dean of the engineering department of Texas A. & I. College at Kingsville, was elected president of the Petroleum Industries Association at Alice, November 19, at the first fall meeting of the organization.

Other officers elected were: J. A. Huff, Alice, first vice president; Ed Breedlove of Alice, second vice president; Frank H. Dottereich of Texas A. & I., Kingsville, third vice president; J. W. Rockwell, fourth vice president; Ted Brammer of Robstown, secretary-treasurer; and directors N. M. Miller of Alice, Knox Miller



Once a year key men in the production department of Phillips Petroleum Company gather at the company's headquarters in Bartlesville, Oklahoma, to study their problems, learn new methods, absorb enthusiasm and renew acquaintances. Here they are as they gathered recently for the tenth annual meeting. Titles have been abbreviated: superintndent—S, assistant superintendent—AS, clerk—C, engineer—E.

—Photo courtesy Phillnews

1. E. D. Leggett, C, Corpus Christi
2. J. M. Gardner, S, Oklahoma City
3. P. C. Murphy, S, Houston
4. R. J. Fernandez, C, Odessa
5. I. H. Hughes, E, Bartlesville
6. Harry Boxell, C, Great Bend
7. V. P. Partridge, S, Corpus Christi
8. Murray Spearman, C, Bartlesville
9. Jack Walker, C, Bartlesville
10. L. J. Timmons, C, Bartlesville
11. J. N. Perkins, S, Phillips
12. P. R. Hollis, C, Smackover
13. Jay Boxell, C, Bartlesville
14. H. W. Patterson, C, Oklahoma City
15. L. D. King, C, Oklahoma City
16. J. B. Murphy, C, Bartlesville
17. J. A. May, C, Smackover
18. Linus Riggs, C, Eureka
19. E. R. Holt, C, Bartlesville
20. P. J. Hubbell, S, Bartlesville
21. L. B. Seymour, C, Billings
22. J. S. Montgomery, S, Bartlesville
23. D. R. McKeithan, E, Bartlesville
24. R. J. McLellan, C, Vernon
25. L. R. Lacy, S, Bartlesville
26. Glenroy Bilbe, C, Fairfax
27. J. F. Proctor, C, Bartlesville
28. R. C. Felton, C, Bartlesville
29. R. H. Dunn, E, League City
30. B. F. Laughery, S, Carmi
31. L. E. Fitzjarrald, Asst. to Production Manager
32. C. P. Dimit, Vice President
33. D. R. Knowlton, Production Mgr.
34. W. C. Williamson, C, Shidler
35. R. E. Jolly, S, Eureka
36. A. W. Paine, AS, Billings
37. C. M. Langford, Jr., E, Houston
38. W. K. Lawrence, S, Shidler
39. R. E. Schooler, C, Houston
40. J. M. Houchin, AS, Oklahoma City
41. T. A. Walker, Jr., C, Oklahoma City
42. L. C. Atwood, C, Bartlesville
43. H. E. Warren, C, Bartlesville
44. M. D. McNutt, C, Bartlesville
45. O. R. Lemaster, C, Bartlesville
46. M. C. Woody, C, Bartlesville
47. H. R. Polson, C, Seminole
48. V. M. Spratt, S, Seminole
49. J. P. Stephens, S, Oklahoma City
50. F. H. Egolf, AS, Seminole
51. C. L. Montgomery, S, Vernon
52. F. W. Shelton, S, Great Bend
53. D. A. Miller, AS, Oklahoma City
54. J. F. Patterson, S, League City
55. J. E. Daxon, AS, Shidler
56. F. J. Neslage, E, Shidler
57. S. I. Betzer, AS, Bartlesville
58. R. A. Bobo, AS, Vernon
59. H. S. Kelly, AS, Amarillo
60. C. A. Daniels, S, Amarillo
61. C. L. White, S, Fairfax
62. C. A. Phillips, C, Bartlesville
63. R. E. Huling, C, League City
64. H. J. Loy, C, Oklahoma City
65. C. E. Sturdevant, S, Billings
66. R. K. Clutter, S, Smackover
67. H. S. Roll, S, Phillips
68. C. H. Armstrong, C, Bartlesville
69. M. R. McArthur, AS, Houston
70. G. L. Phillips, C, Bartlesville
71. W. G. Harvey, S, Bartlesville
72. W. J. Crites, E, Bartlesville
73. L. H. Thawley, E, Houston
74. A. J. Larsen, C, Bartlesville
75. R. L. Pulsifer, C, Bartlesville
76. R. C. Quinn, S, Schuler
77. W. J. Roberts, AS, Fairfax
78. A. L. Kinchen, AS, Corpus Christi
79. H. W. Baker, AS, Smackover
80. F. M. Stevenson, E, Bartlesville
81. G. J. Turner, S, Bartlesville
82. D. A. Chase, S, Great Bend
83. Dorris Ballew, AS, Oklahoma City
84. Earl Griffin, S, Oklahoma City
85. M. L. Atkinson, S, Odessa
86. E. F. Kelso, AS, Eureka
87. C. M. Oden, S, Smackover
88. R. W. O'Neill, AS, Odessa
89. F. E. Graves, C, Amarillo
90. J. F. Hendrickson, AS, Phillips

of San Antonio, Frank Bridwell of Alice, Harold Decker of Corpus Christi, H. P. Kemp of Alice, Ed DeBeck of Corpus Christi, J. W. Gorman of Freer, Charles Bryant of Corpus Christi, R. D. Shinkle of Alice, T. C. Shaw of Woodsboro and Pat Downing of Alice.

Retiring officers include J. V. Polk, Woodsboro, vice president; J. A. Huff of Alice, M. G. Spencer of Victoria, directors. The nominating committee was composed of J. M. Shugert, J. W. Rockwell, Hardy Emerson and Ralph Keeran.

The association meets once each month to discuss various problems of the petroleum industry in South Texas and to exchange ideas on various phases of the technical processes involved in that industry.

R. L. SMITH, Humble Oil & Refining Company assistant district chief clerk, has been appointed district chief clerk in the Hurdle district, West Texas. Eugene M. Philpot, Jr., instrument man, has been appointed civil engineer in the Galveston Bay district.

DR. W. L. CRAIG, professor of chemistry, Texas Technological College, Lubbock, addressed the Houston Geological Society November 20 on "The Spectograph as a Possible Tool for the Correlation of Strata."

SHERILL WILLIAMS has been transferred by Cities Service Oil Company from Bartlesville, Oklahoma, to the Mt. Pleasant office. He will handle scouting under William Schulz, head of the land and geological office.

W. A. MONCRIEF, Fort Worth, recently was elected a director of First National Bank of Fort Worth. He served in the World War, and after the armistice he entered business with Marland Oil Company at Ponca City. In 1924 he was transferred to Texas as vice president. Later he entered the oil business for himself and was co-discoverer of Lathrop 1, well that extended the East Texas field approximately 25 miles. He is president of Mon-Sho Oil Company of Fort Worth, a member of the firm of Showers and Moncrief, a director of Premier Royalty Company, director of Independent Petroleum Association of America, and chairman of the Interstate Oil Compact Committee of the I.P.A.A.

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GUY A. DAVIS has been elected vice president and has been appointed general manager of the Highland Oil Company, which in a reorganization has moved its general headquarters from Houston to San Antonio. William H. Spice, San Antonio geologist, has been elected president and director. The company has merged its properties with those formerly developed in Southwest Texas under the name of Guy A. Davis. E. D. Miller is secretary and treasurer and G. H. Stolte is assistant secretary. Other directors include Leon F. Russ of Dallas; A. M. Russ, San Antonio; W. L. Goldston, Houston.

ROBERT RUSSELL of The Texas Company, Caracas, Venezuela, was honor guest at a luncheon meeting of the Houston Chapter of Nomads, Tuesday, November 18. In a brief talk he outlined some of the problems confronting an oil man in that country today. Other guests included J. C. Van de Berg of Shell Oil Company, and C. F. Bedford of Stanolind Oil & Gas Company.

W. W. FUELL, auditor for Hickok & Reynolds, West Central Texas operators with headquarters at Cisco, has been appointed office manager, succeeding the late Rosehll Daniel.

FRANK W. MORRIS has been appointed manager of sales, West Coast territory, for Spang Chalfant, Inc. He succeeds J. V. Greer, resigned. Morris' headquarters will be in Los Angeles. He has been associated with the company's sales organization several years.

J. W. ROCHE, formerly district engineer for Shell Oil Company at Great Bend, Kansas, is now located in Tulsa.

FRANK W. BEACH, Cities Service Oil Company, has been transferred from Russell, Kansas, to the company's headquarters at Bartlesville, Oklahoma.

NORMAN E. DONNELLY has been appointed marine sales manager of the Buda Company, Harvey, Illinois.

R. W. BYRAM & COMPANY, Austin, Texas, observed its twentieth anniversary November 17. The company, which issues industrial reports, issued a weekly report until the East Texas field was discovered in 1930. It was at this time that a daily report was published. In 1937 field regulations became so numerous the company issued a book, "Rules and Regulations Governing Production of Oil and Gas."

WALTER H. MEIER, 55, supervisor of the natural gas department of The Atlantic Refining Company, Dallas, died November 15 at his Arlington, Texas, home after a prolonged illness. He served with the United States Army in France during World War I, and began work with Atlantic in 1920 as chief construction engineer. Meier was an exceptionally active worker in the American Petroleum Institute's Division of Production, having been chairman of the Committee on District and Chapter activities as well as Vocational Training for 10 years, and had taken a deep interest and part in other activities of the Institute. Much of the credit for the Institute's continued chapter and vocational training work was due to his leadership.

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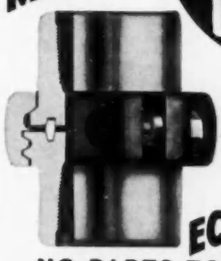

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PD-25D PD-83A

IN STOCK AND AVAILABLE FOR IMMEDIATE SHIPMENT

Form PC-25C (revised) is provided as a replacement of the original Affidavit PD-25C. It is for use by those who give to their suppliers a monthly statement of the percentage of the previous month's dollar volume which was for Defense, as defined in the Defense Supplies Rating Plan.

Form PC-25D is provided as a replacement for those who have been using the affidavit as identification for **individual purchases** and who have shown thereon the number of the Order or Certificate assigned a preference rating under which the material covered by that individual order was to be used. For your convenience the new form is a **Customer's Certificate of Defense Requirements** instead of an **Affidavit.**

Form PD-73 pertains to the shipment of steel under Preference Order No. M-21.

Form PD-83A pertains to deliveries of steel from warehouse stock during first quarter of 1941.

★

GULF PUBLISHING CO.
Stock Form Dept.
P. O. Box 2608 Houston, Texas
Telephone Hadley 3141

Squeaks from the Bull Wheel

Priorities

Keep your temper, gentle sir; writes
the manufacturer.
Though your goods are overdue, for a
month or maybe two,
We can't help it, please don't swear;
labor's scarce and metal's rare.
Can't get steel, can't get dies; these
are facts, we tell no lies.
Harry's drafted, so is Bill; all our work
is now uphill,
So your order, we're afraid, may be still
a bit delayed.
But you'll get it, don't be vexed; maybe
this year, maybe next.

Genius

"Johnnie, you have misspelled almost every word in your composition."

"Yes, ma'am; I'm going to be a dialect writer."

Social Error

The maid quit—she said you spoke to her insultingly over the phone.

I thought I was talking to you.

Help Wanted

Two boys are trying to break into my room through the window.

Listen, lady, you've got the wrong number. This isn't police headquarters, this is the fire department.

I know, but my room is on the second floor and they need a ladder.

Minor

Ouch! I've thrown my knee out of joint.

Aw, don't let that bother you. I've had my whole body thrown out of lots of joints.

Beginner

I'll be frank with you. You're not the first girl I ever kissed.

And I'll be equally as frank with you. You have a lot to learn.

Nuts Anyhow

That land you sold me is no good. You said I could grow nuts on it.

O no, I didn't say that. I said you could go nuts on it.

Identified

What kind of pie is this?

What does it taste like?

Glue.

Then it's apple. The pumpkin tastes like soap.

Some Help

Has your son's college education been of any value?

Yeah. Now his mother has stopped bragging about him!

Strong Stuff

The keeper of the local inn, which had a reputation for its very strong brew, was awakened at midnight by a loud knocking on the front door. Putting his head out of the window, he shouted:

"Go away. You can't have anything to drink at this hour."

"Who wants anything to drink? I left here at closing time without my crutches."

From Australia

Boy: "Gimme sixpenn'orth of cod-liver oil—an' it's gotta be fresh."

Druggist: "'Fresh,' did you say? Do you think we're going to slaughter a whale every time a youngster like you comes in here and wants sixpenn'orth of cod-liver oil?"

Bugs

First Farmer: "Potato bugs ate my whole crop in ten days."

Second Farmer: "They ate mine in two days and then roosted in the trees to see if I'd plant some more."

Seed Merchant: "That's nothing; there's a couple over there now, looking through my books to see who has ordered seed for next spring."

Pan British

"Good morning, Brown, I hear you have a son and heir?"

"Yes, sir. Our household now represents the British kingdom."

"How is that?"

"I am English, my wife's Scottish, the nurse is Irish, and the baby wails!"

Modern Grandma

Now who will tell me one important thing you must all do before going to bed at night?

Put the doorkey in the mailbox for Grandma.

Radical Change

Do you remember that you said if I'd marry you, you'd be humbly grateful?

Well, what of it?

You've changed it to grumbly hateful.

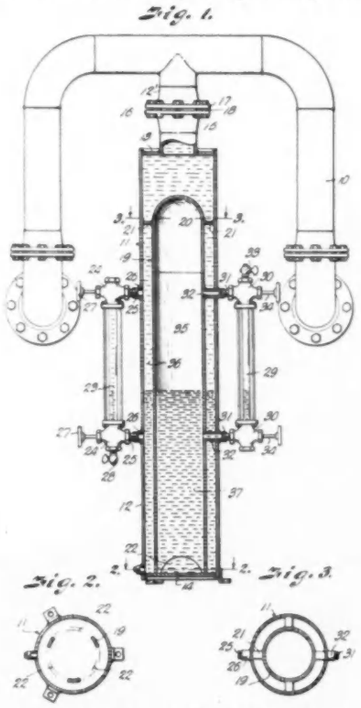
Gotkool
WATER CANS
& COOLERS
GOTT Water Coolers are the convenient way to keep drinking water handy to the worker, protect it from impurities. Their exclusive construction keeps water cool for long periods. Snug fitting large removable top, handy non-leaking push button faucet. GOTT Water Cans for handy field use. Your Supply Store has them, get one today! . . . .
Gott
GOTT WATER COOLER
Made in 3, 5, 8, 10, and 20 gallon sizes.
GOTT WATER CAN
Made in 1½, 3, 5 and 10 gallon sizes.
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

NOTES FOR THE Equipment Buyer and User

Liquid Seal Equalizer
WHEATLEY BROTHERS

Wheatley Brothers, Pump & Valve Manufacturers, Tulsa, have announced a new pressure equalizer recently developed for use on reciprocating pumps. Such a device is said to be essential on the low-pressure or suction side to absorb the momentum resulting from the constantly fluctuating velocity of the fluid. Alleviators are also required on the high pressure or discharge side to equalize shock.

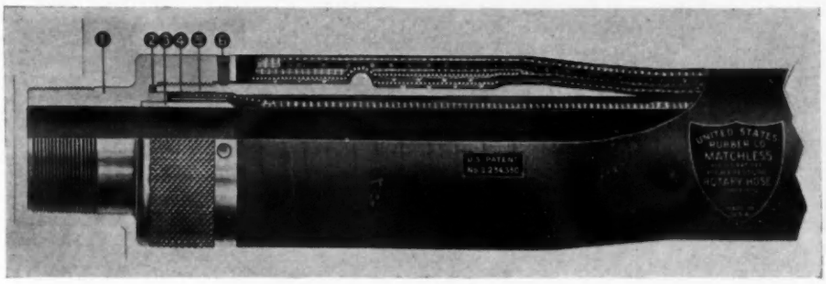
The Wheatley Liquid Seal Equalizer is said to incorporate the best features of the conventional air chamber but eliminates the objectionable characteristics. The air or gas cannot escape into the line. This is accomplished by the fact that the sealing liquid is inert to absorption of air or gas from the compression chamber. The liquid also is insoluble in and of higher specific gravity than the liquid being pumped. These features minimize the tendencies toward corrosion and gum forming in the lines and eliminate the danger of explosion when air is used in the compression chamber. The alleviator has no moving parts.



Wheatley Liquid-Seal Equalizer

New liquid seal alleviator may be used on both suction and discharge side. On high-pressure applications it may be necessary to charge the alleviator with gas when it is first set in the line. However, periodic recharging is not necessary because the alleviator does not lose its charge.

The equalizer may be used at all prevalent operating pressures of the pipe line industry. A thorough trial by a major pipe line has demonstrated the outstanding features and efficiency of the equalizer under actual operating conditions, it is claimed.



U. S. Rubber Built-In Coupling

Coupling
UNITED STATES RUBBER COMPANY

United States Rubber Company has issued a detailed drawing of the built-in coupling on its newest type of rotary hose.

Assembly drawing reveals that the coupling, which is used on both U. S. Matchless and Peerless brands, is an integral streamlined part of the hose itself, requires no flanges, nozzles, bolts nuts, clamps or hydraulic nipples, and provides a full hole connection.

Through use of special type of cap and expansion ring a coupling is provided that is claimed to be leak-proof and to actually tighten the seal as the pressure increases. Male threads are provided on both ends of the hose, and additional connections are minimized.

This construction, the company said, has been developed to meet increasing demands of the oil producing industry.

The company states that this streamlined type of built-in coupling represents the answer of their engineers to the problem. It has been tested in both the laboratory and the field, for nearly 2 years, under the most extreme conditions, and is at present operating successfully on many widely varied drilling jobs.

Key to cut-away drawing of built-in coupling on newest type of rotary hose is: (1) coupling cap; (2) end cap seal; (3) expansion ring protector; (4) expansion retaining ring; (5) built-in nipple; (6) coupling cap anchor seal.

Seismograph Service Corporation Celebrates Tenth Anniversary

A presentation banquet and dance climaxed the three-day company meeting held by Seismograph Service Corporation of Tulsa on November 1-3.

The meeting, which marked Seismograph's tenth anniversary, was featured by a technical program at which papers

WEIGHT INDICATOR POINTS
A PLUGGED NICKEL wouldn't cover the savings you make with misleading weight readings. But accurate indications can result in more and straighter hole . . . less equipment wear . . . and lower costs.
Then why not be sure of your savings? The Martin-Decker "Sealtite" is the most accurate and complete instrument available for the practical control of every important drilling function —weight, speed, pressure, and torque. With the gauges grouped right in front of the driller where they're easy to read, he'll be able to drill you a far more economical well!
MARTIN-DECKER CORP. LONG BEACH, CALIF.

Seismograph Service Celebrates Tenth Anniversary

on various geophysical problems and operations were presented by different engineers of the company. This phase of the meeting was conducted in the same fashion as some of the industry's technical association conventions.

At the banquet, five- and ten-year service emblems were presented to 31 men by Gerald Westby, company president, and T. A. Manhart, vice president. Plans are being made for Seismograph executives and supervisors to make similar presentations of pins to about 40 more employes located throughout the United States, Trinidad and Venezuela, who were unable to be present at the Tulsa meeting.

Merco-Nordstrom Pittsburgh Representatives Hold Meeting

Following sessions of the American Petroleum Institute, held in San Francisco recently, more than a score of officials and representatives of Merco Nordstrom Valve Company and Pittsburgh Equitable Meter Company met for discussion of 1942 activities. W. F. Rockwell discussed policies of the two companies and conditions confronting the organization, priority situations and plans for immediate expansion. Studies of production facilities were made at the Oakland plant, where several hundred visitors at the A.P.I. convention were guests during the days immediately preceding.

Le Roi Celebrates Twenty-fifth Anniversary

Le Roi Company, Milwaukee, Wisconsin, recently celebrated 25 years in business. The company, which started in a small shop, has grown to consist of three plants. The company manufactures engines from 4 to 400 horsepower, portable air compressors, and engine-generator sets. C. W. Pendock has been president and J. R. Frantz vice president since the company was founded.

Ashcroft Celebrates

The Ashcroft Gauge Division of Manning, Maxwell & Moore, Inc., Bridgeport, Connecticut, is celebrating its 90th anniversary this year. The makers of the gauge say that 90 years ago Ashcroft built the first Bourdon tube pressure gauge ever built in the United States.

Representatives of Merco Nordstrom Valve Company and Pittsburgh Equitable Meter Company gathered for conference at San Francisco. In the picture, first row: H. Boezinger, W. F. Rockwell, and A. E. Higgins. Second row: Orville Cochran, Jack Siedentopf, Hank Gottwald, George Scherer, Arthur Kerr, Charlie Bergman, Dick Ford, and Jack Cottrell. Third row: Ernie Adams, Carl Madison, Russ Waters, Ralph Marriott, Bill McLaughlin, Gilbert Bowman, Ed Hedene, Pete Maxfield, Andy Fomilyant, Paul Kreuch and Fred Webster.

Advertisers' Index

In the following index is shown only the advertisers having advertisements in this issue.

*American Iron & Machine Works Co. ..... IV Cover
*American Sand-Banum Co. 59
*Baker Oil Tools, Inc. 2
Wm. M. Barret, Inc. 67
Jo H. Cable 69
*Cardwell Manufacturing Co. 1
*Caterpillar Tractor Co. 30-31
Continental Oil Co. 51
The Continental Supply Co. 35
*Darling Valve & Manufacturing Co. 64
*Dowell, Incorporated ..... Insert 8-9
The Eagle-Picher Lead Co. 4
Fort Worth Laboratories 67
*Frick-Reid Supply Corp. 37
General American Transportation Corp. 6
*H. P. Gott Manufacturing Co. 70
I. H. Grancell 65
Gulf Engineering Co. 67
*Haynes-Stellite Co. 29
Hercules Powder Co. 8
Houston Laboratories 67
*Hughes Tool Co. ..... I Cover
Industrial Electric, Inc. 67
*Johns-Manville Corp. 58
McKissick Products Corp. 57
M. M. Kinley Co. 69
*Larkin Packer Co. 39
*Martin-Decker Corp. 71
Mid-Continent Mud Co. 69
*Mission Manufacturing Co. 40-41
*Morse Chain Co. 27
Murray Tool & Supply Co. 67
*Oil City Brass Works, Inc. 69
Oil Well Supply Co. 5
*Otis Pressure Control, Inc. 48
*Patterson-Ballagh Corp. 59
*Pelican Well Tool & Supply Co. 60
Petroleum Rectifying Company of California 48
Republic Steel Corp. 3
Southern Pacific Lines 45
*Stoody Co. 33
The Thermoid Co. ..... III Cover
*Thornhill-Craver Co. 67
Union Carbide and Carbon Corp. 29
United States Steel Co. ..... 5 and 43
*Universal Atlas Cement Co. 43
Warner & Swasey Co. 10
*Wilson Manufacturing Co. ..... II Cover
York Oilfield Supply Co. 67
Youngstown Sheet & Tube Co. 23

* Indicates that detailed information on the manufacturer's products or services may be found in the 1941 edition of The Composite Catalog of Oil Field & Pipe Line Equipment.